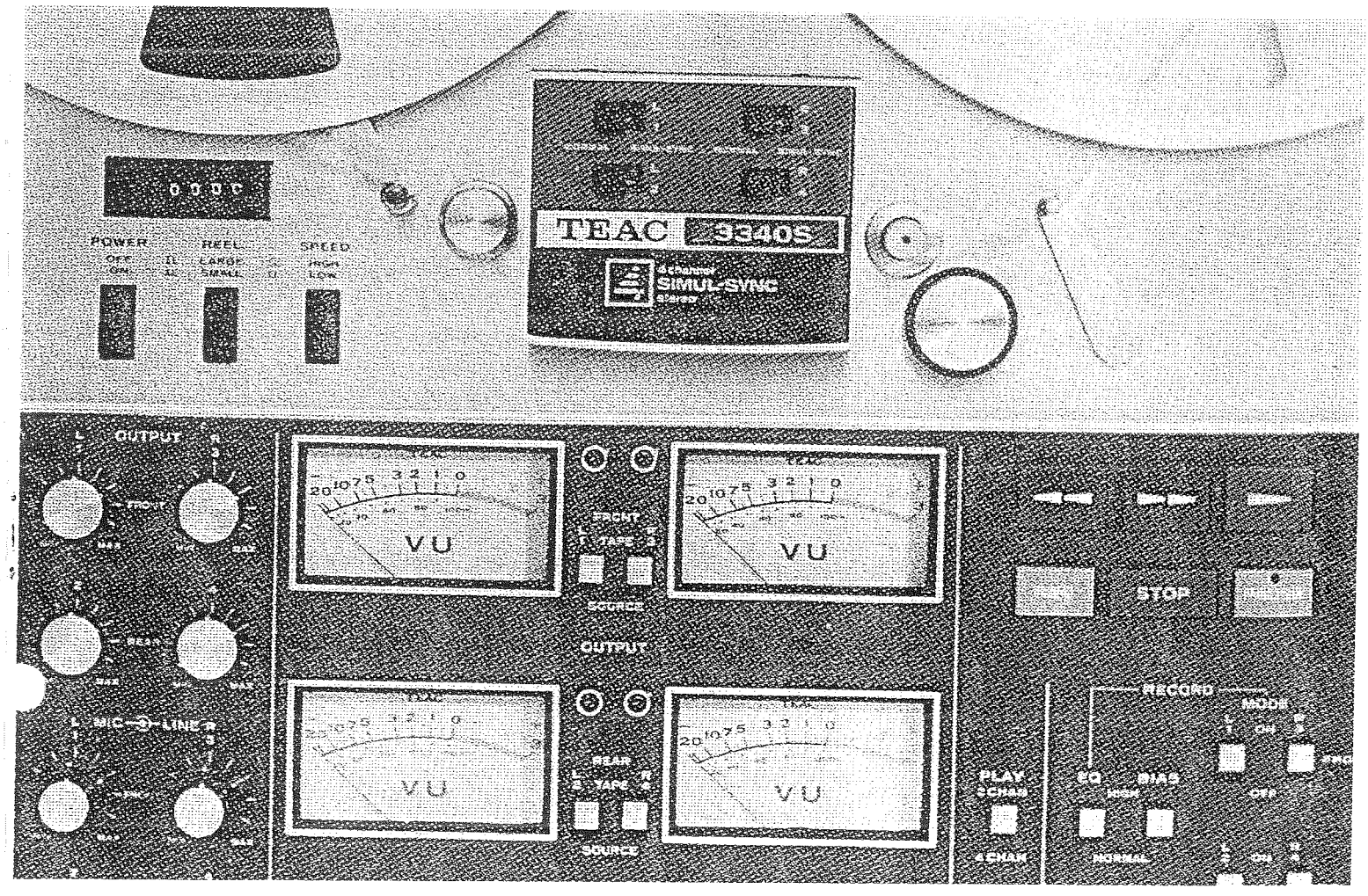
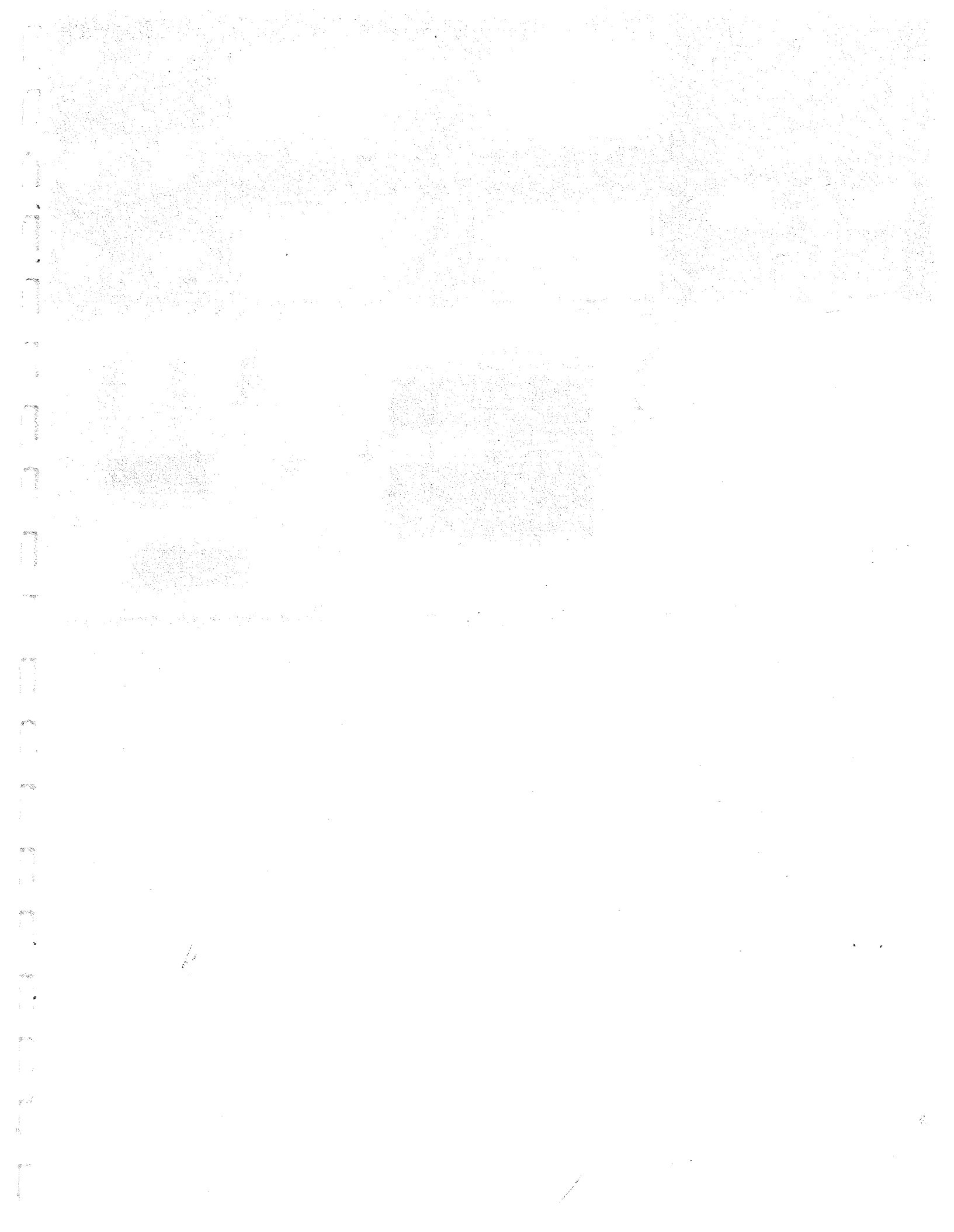
TEAC®

INSTRUCTION MANUAL

4 Channel Simul-Sync Stereo Tape Deck **3340S**





Congratulations. You now own a TEAC 3340S 4-Channel Simul-Sync Tape Deck– the second generation of TEAC's famous Creator series. Owning a TEAC 3340S is like having a recording studio at your command. It gives you four separate channels in one direction on which signals from eight different sources may be recorded simultaneously or one channel at a time – synchronously. Independent microphone and line inputs and outputs, each with their own level controls, provide virtually unlimited blending and mixing options. The sonic effects at your command are endless–and limited only by your imagination.

Developed and manufactured by TEAC Corporation, the Leaders in tape recording technology, the TEAC 3340S will give you years of recording and listening pleasure if you continue to give to it the care and attention this deck received during its creation. To this end, we urge you to carefully read and use the contents of this Instruction Manual. With a minimum of regular preventive maintenance and a respect for its limitations and capabilities, you will continue to enjoy the thrill of using and owning the TEAC 3340S.

OPERATIONAL LIMITATIONS

The TEAC 3340S is very well constructed and adaptable to a wide range of conditions. Nevertheless, it has certain limits to be considered as do all electronic devices. To prolong the life of your new deck, consider the following factors when you install and operate the 3340S.

Mounting position

This deck may be used in either the upright or horizontal positions. The upright position is preferred for it offers more efficient ventilation. For horizontal operation, always attach and use the rubber mounting feet on the back edges of the deck for protection of the Remote/Timer Control Dummy Plug.

Constant high temperature locations

Do not operate this unit near heating appliances or on top of an amplifier where amplifier heat would contribute to a rise in the deck's operating temperature. Do not place the unit where it will be exposed to direct summer sunlight. Temperature extremes will not only cause degradation of sound quality, but will also shorten the useful operating life of the unit. Avoid temperatures higher than 100°F.

Extremely low temperature locations

In low temperature locations, the lubricants will harden and satisfactory operation cannot be expected. Operation will be sluggish and an overload may be placed on the drive motors. Avoid temperatures lower than 40°F.

High humidity locations

High humidity will hasten corrosion and possible fungus growth on the printed circuit boards, thus shortening equipment life and performance.

Dust environments

Your TEAC deck is a precision-built machine and as such should be protected from dust. Operation in a dusty atmosphere will result in excessive bearing and tape head wear. Your tapes should also be kept dust-free.

Fluctuating supply voltage

Should you be in an area where fluctuation in the AC line voltage is severe, the use of a voltage controller may be advisable.

* Photographs and/or illustrations may differ slightly from the appearance of your deck when production design improvements are incorporated.

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WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

The TEAC 3340S is not so complex as your first impression might give you. A careful reading of this manual will show you that all controls and features are quite logical and convenient to use, once you become familiar with the deck itself. We have included some most important information in this manual to guide you into the fascinating world of creative 4-channel discrete recording.

As a creative tape deck, the 3340S is extremely versatile. This means that you will, through experimentation and experience, find many possible applications and combinations that are not thoroughly covered by this manual. Every recording installation and situation is unique. Except for the electrical limitations of the deck itself, this manual should not be considered as a limit to what you can do with the 3340S. If you have a problem achieving the results or performance you think you should have with this deck, please consult with your TEAC dealer, an audio engineer in your area or the many fine publications available today which cover the more advanced aspects of tape recording.

SERVICE

Should your tape deck need repair, contact the dealer where it was purchased or the nearest TEAC Authorized Service Center. They can also secure parts and accessories for you.

Your new TEAC 3340S has been manufactured under very strict quality control procedures. Each unit has been thoroughly checked at the factory. In the event of any damage during transit or doubts as to its performance, contact your dealer as soon as possible.

Our investigation has shown that approximately 40% of the service calls immediately after purchase resulted from improper or incorrect operation of the equipment. Therefore it is important that you thoroughly read and understand this manual before placing the unit into operation. Failure to properly clean your deck will result in a degradation of performance. Careful observation of the cleaning and servicing hints contained in this manual will contribute to a lengthened, trouble-free unit life.

Please consult the chart of "Possible Troubles" before seeking service as most common troubles are thoroughly covered by that chart (pg.30).

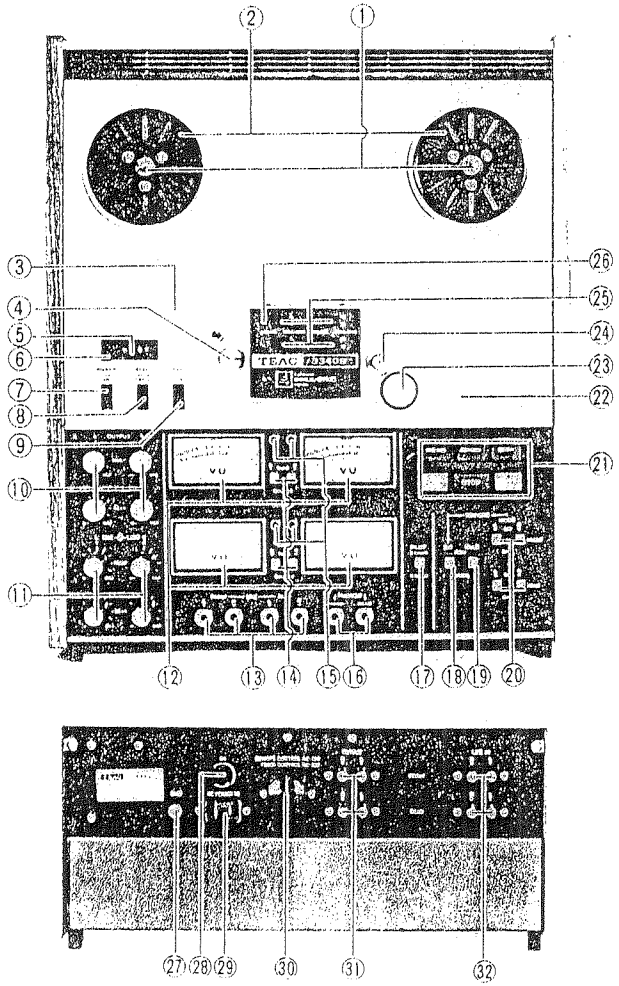
WARRANTY

1. Warranty period is described in the enclosed warranty card, read the card for complete details.
2. For repairs after expiration of the warranty period, a service charge will be made in addition to the price of parts.
3. Although the unit may still be under the Warranty period, you may be charged for repairs made necessary by misuse or damage incurred as a result of improper operation.

Keep the original packing!

You may need the original carton to protect the 3340S deck for moving or storage. If this unit is returned for servicing, you will be responsible for shipping damage if it was improperly packed.

Location of the Features and Controls



(1) Quik-Lok Reel Holders
Firmly hold the tape reels to the Reel Tables.

(2) Reel Tables
Provide a platform for the tape reels.

(3) Tape Tension Arm
Acts as a mechanical filter with the Tape Guide Post (4) to maintain proper tape tension.

(4) Tape Guide Post

(5) Index Counter
Indicates relative location of selections on the tape.

(6) Index Counter Reset button
Restores Counter digits to "0000".

(7) POWER switch
Depress to apply power. VU Meter lamps will illuminate as selected by the PLAY switch (17). Push again for OFF.

(8) REEL Size selector switch
Establishes proper back tension and reel torque for LARGE (10½") or SMALL (7") reel sizes.

(9) SPEED selector switch
Depress for the LOW speed of 7½ ips (19 cm/s); release for the HIGH speed of 15 ips (38 cm/s).

(10) OUTPUT Level controls
Four, independent controls for regulating the level to the OUTPUT jacks (31).

(11) MIC/LINE Input Level controls
Dual concentric knobs controlling the recording input level. The front, center section of each knob is for MIC Inputs. The rear, outer section of each knob is for LINE Inputs.

(12) VU Meters
Provide individual channel monitoring during recording or playback. VU Meter placement corresponds with the OUTPUT and Input Level controls and with standard mic and speaker geometry for 4-channel recording and playback.

(13) FRONT–MIC–REAR Microphone Input Jack
For standard microphones, high impedance (600 to 10000 ohms).

(14) OUTPUT Monitor selector switches
Select TAPE or SOURCE monitor for each channel which will be displayed on the VU meter and heard at the PHONES and OUTPUT jacks.

(15) Record indicator lights
Illuminate when the associated channel is in the Record mode.

(16) PHONES jacks (FRONT – REAR)
Jacks for 8 ohm stereo headphones, one for the FRONT two channels (1 & 3), another for the REAR two channels (2 & 4).

(17) PLAY (2CHAN/4CHAN) switch
Selects either 2-channel (stereo) or 4-channel operation during playback and recording. Switch must be in 4-CHAN position for 4-channel recording. Lower two (REAR) VU meter lamps extinguish when 2CHAN is selected.

(18) RECORD – EQ switch
Selects proper equalization for Low Noise/High Output (HIGH) or conventional tapes (NORMAL).

(19) RECORD – BIAS switch
Selects proper bias current for Low Noise/High Output (HIGH) or conventional tapes (NORMAL).

(20) RECORD – MODE switches
Select which channel or channels will be recorded.

(21) Control Center
Includes 6 buttons which provide complete control over tape transport motion and record activation. See page 7.

(22) Shut-Off Arm
Removes electrical power from the transport section if the tape breaks or ends. Also provides tape guidance.

(23) Pinch Roller
Applies proper pressure for the tape to be driven by the capstan. Engaged only in the Play and Record modes.

(24) Capstan
Drives the tape at a constant speed in the Play or Record modes. Not engaged with the Pinch Roller during Fast Forward or Rewind modes, but rotation continues until electrical power is removed from the transport.

(25) NORMAL/SIMUL-SYNC switches
In the NORMAL position, the TAPE monitor function is performed by the Playback head. In the SIMUL-SYNC position, that function is switched to the Record head to permit synchronization with material being recorded on another channel. Always use the NORMAL position during regular Playback operation.

(26) Head Housing
Protects the heads and SIMUL-SYNC switches from dust and damage.

(27) GND connection
For connecting a grounding wire between components or to earth ground if necessary to eliminate electrical hum.

(28) FUSE holder
Contains a 2 amp fuse for overload protection.

(29) AC POWER IN Male Socket
Connect the electric power cord here.

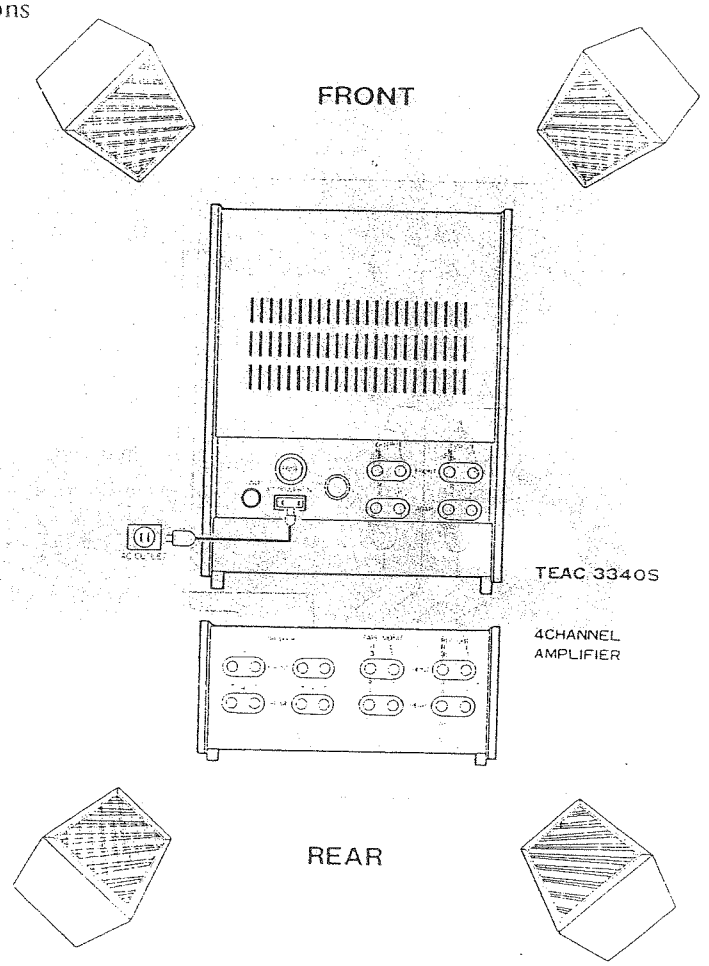
(30) REMOTE CONTROL RC-120/TIMER CONTROL RC-320 Dummy Plug
Unless one of the two optional accessories is connected here, this Dummy Plug must be inserted to permit proper operation of the tape transport.

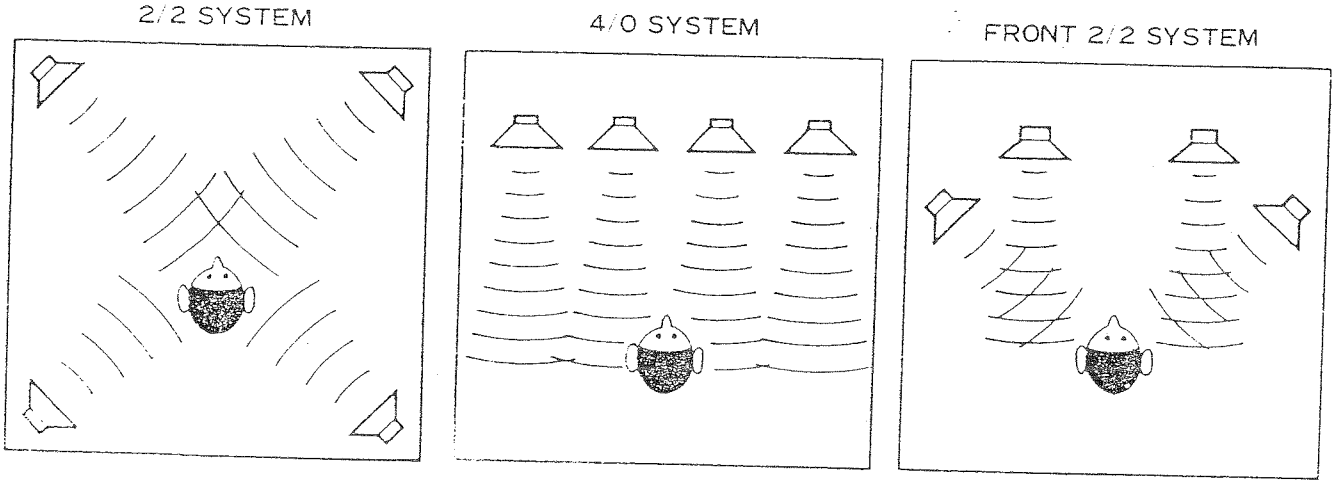
(31) OUTPUT jacks
Connect to the Discrete inputs of a 4-channel amplifier or two 2-channel amplifiers. Notice that the channel designation corresponds with the VU Meters and Level Controls when viewed from the front of the deck.

(32) LINE IN jacks
Line inputs for recording are connected to these four pin cord jacks.

Basic Connection and Speaker Placement

4-Track/4-Channel Connections



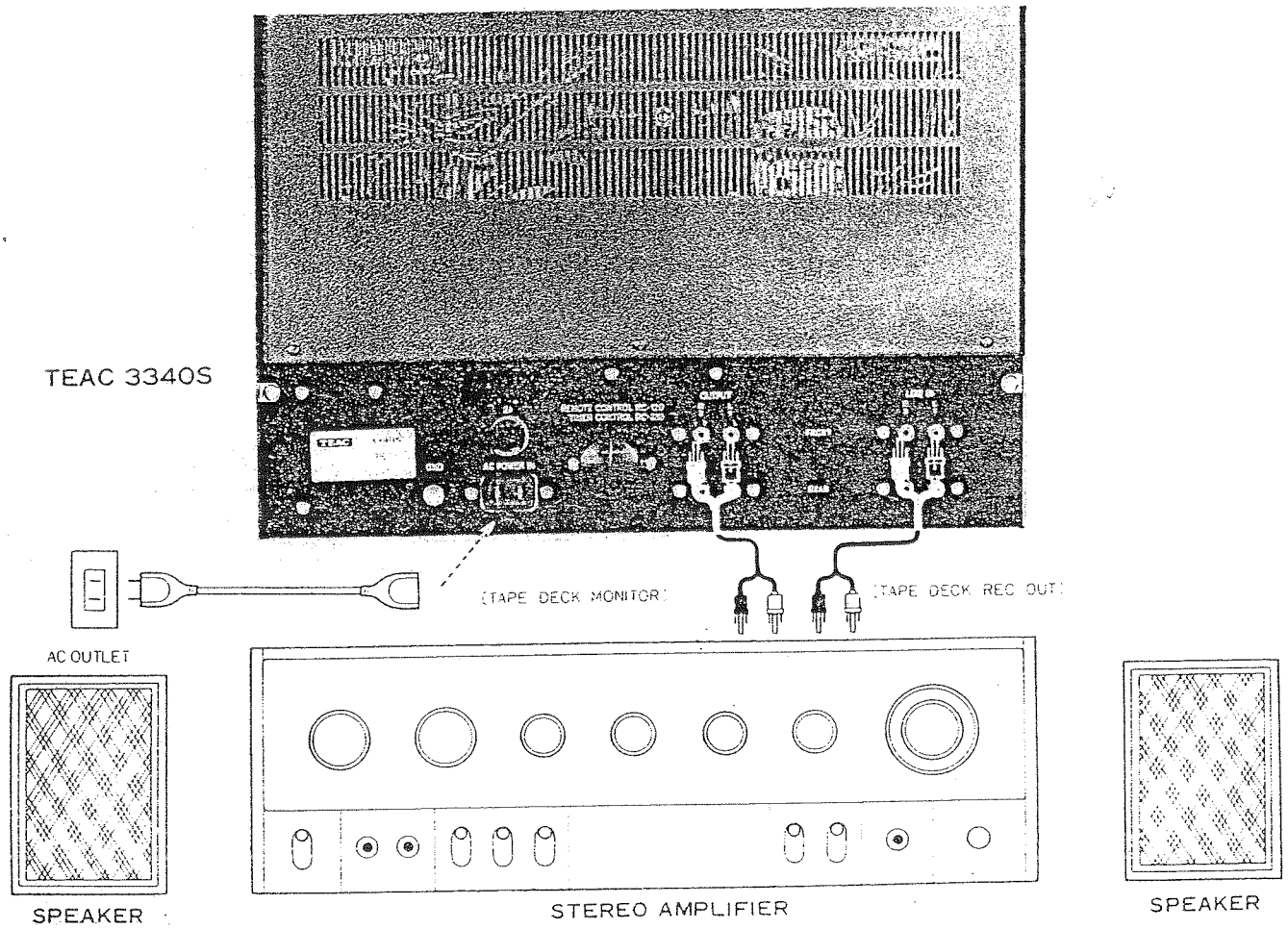


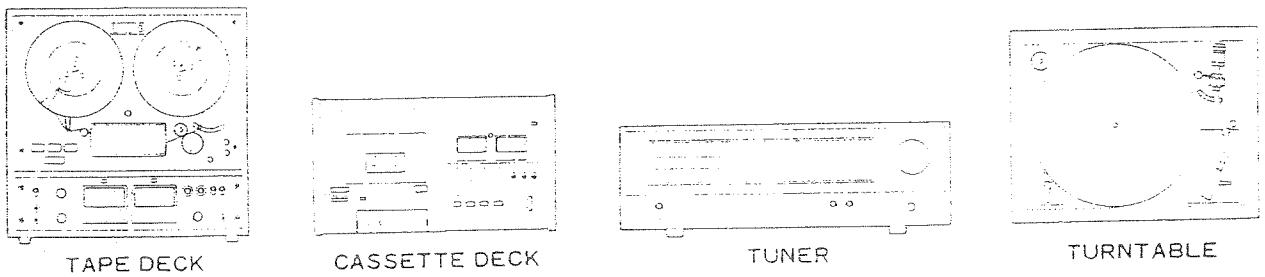
The 3340S is a discrete, 4-channel stereo tape deck. For full utilization of all four channels, it may be used with two separate 2-channel amplifiers or (preferably) with one 4-channel stereo amplifier having separate stereo inputs and outputs for each of the four channels.

To maintain compatibility with standard, 2-channel stereo tapes, the channels are numbered to correspond with the tracks on the tape. They are further designated "Front" and "Rear" to identify them with normal microphone and speaker placement. Thus, channel 1 is FRONT, L1; channel 2 is REAR, L2; channel 3 is FRONT, R3; and channel 4 is REAR, L4. The LINE IN and OUTPUT jacks of the 3340S should be connected to the corresponding designations on the panel of the 4-channel amplifier.

IMPORTANT: If your 4-channel amplifier does not have a discrete output for 4-channel tape recorders with 4 separate jacks to correspond with the LINE IN jacks on the 3340S, discrete 4-channel Recording and Playback from the deck cannot be expected.

4-Track/2-Channel Connections





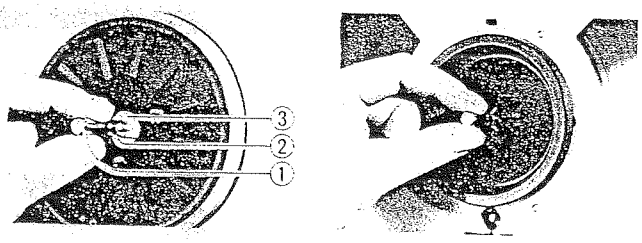
If you wish to use the 3340S as a conventional, 2-channel stereo tape deck, use the FRONT connections only (L1 & R3). Remember to place the PLAY switch on the front of the deck to the 2CHAN position and leave it there.

Basic Operation of the TEAC 3340S

Transport Controls

Certain operations are basic to tape deck operation and are referred to throughout this manual in a few words when they actually involve a certain level of familiarity with the tape transport operation. Connect only the AC power cord and use a reel of blank (unrecorded) tape and an empty reel.

Quik-Lok Reel Holders

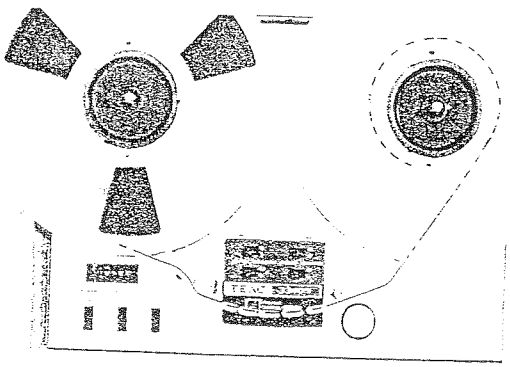


a. Loosen the reel shaft tip fully CCW(counter-clockwise).
b. Align the outer 3 index tabs (Ref. 2) and the inner 3 index tabs (Ref. 3). This is done by turning the upper tab section (Ref. 2) slightly CCW to place the tabs in a straight line between the two sections.
c. Using both hands, grasp a reel and place its center hole partially over the reel shaft tip (Ref. 1). Then gently rotate the reel CCW while sliding the reel fully onto the turntable. When the outer 3 index tabs (Ref. 2) are fully visible above the reel, you may proceed to step (d).
d. Carefully rotate the outer tab section (Ref. 2) clockwise until it stops (approximately 60 degrees or 1/6 of a revolution). Then turn the reel shaft tip clockwise approximately 3 revolutions so it is finger-tip tight. The outer index tabs must be about mid-way between the corresponding slots on the reel.

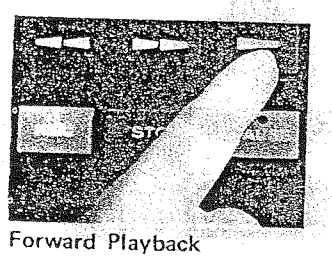
NOTE: The tape must leave the left side of the full reel.

If large-center (NAB 10-1/2") metal reels are to be used, insert the plastic Reel Adapters into the center of the metal reels before placing them on the reel tables. Also place the Reel Heights Adapter sheets on to the Reel Tables. These inserts and sheets are included with the Standard Accessories packet accompanying your deck.
Always use a reel of the same type and size on the right, take-up reel table. Both reels should be of the same hub diameter, material and outside diameter to assure proper braking and tension.

Threading the tape

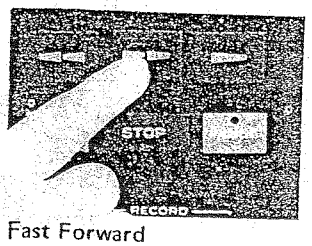


a. Carefully unreel (pull out) approximately 30 inches (75 cm) of tape from the supply reel. Thread this tape in the following manner: Over the left Tension Arm, under the Guide Post, under and through the Head Housing, between the Pinch Roller and Capstan, under and around the right Shut-Off Arm, then onto the take up reel.
b. Secure the end of the tape to the take-up reel by holding the end of the tape in the slot while rotating the reel several turns counter-clockwise (CCW).
c. Continue rotating the take-up reel until the tape is no longer loose. Correct tension will raise the Shut-Off Arm from the 3 o'clock position to the 10 o'clock position.



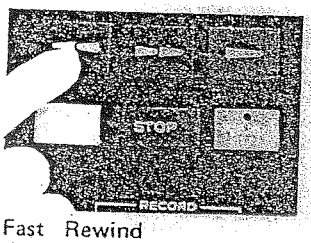
Forward Playback

(Tape moves from left to right)



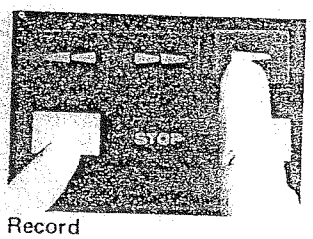
Fast Forward

(Tape winds rapidly onto right reel)



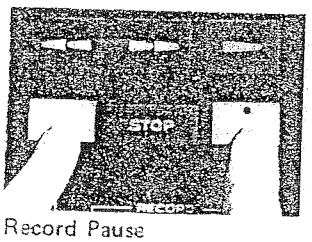
Fast Rewind

(Tape winds rapidly onto left reel)



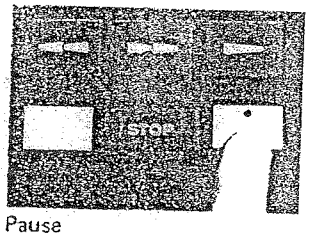
Record

(Tape is recorded, MODE switch must be ON)



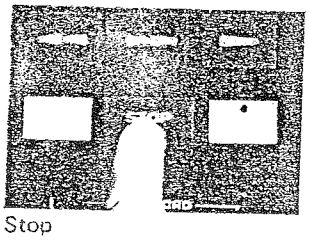
Record Pause

(Establishes Record mode without starting tape movement. RECORD MODE switch(es) must be ON, both lights illuminate).



Pause

(Stops tape motion; when recording retains mode and light illuminates; during Playback acts as STOP button.)

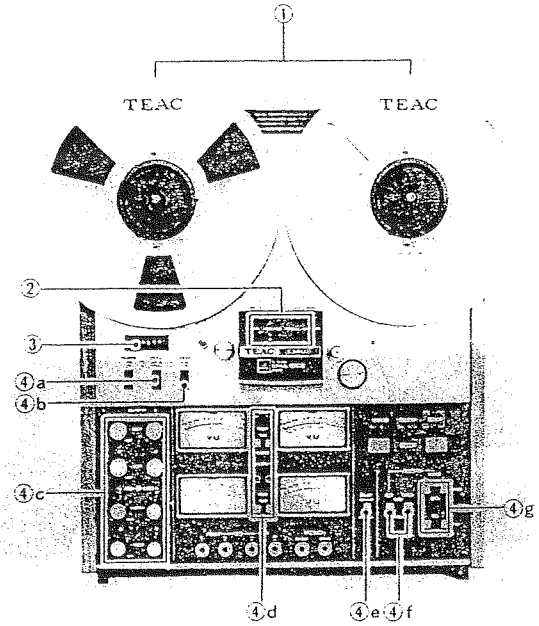


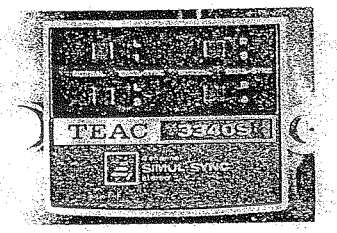
Stop

(Tape motion ceases, mode released)

Playback Operation

Preliminary Settings

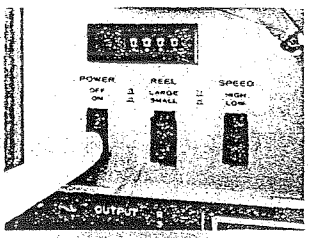




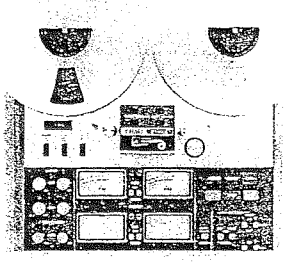
1. Thread the tape.
2. Confirm all Simul-Sync switches in the NORMAL position.
3. Reset the Index Counter for "0000".
4. Set the following switches as indicated:
   a. REEL Size Selector switch to match the reels.
   b. SPEED Selector switch to match the speed used when the tape was recorded.
   c. All Level controls (OUTPUT, MIC, LINE) to MIN. (counter-clockwise).
   d. All OUTPUT Selector switches for TAPE monitoring.
   e. PLAY switch for 4CHAN operation.
   f. RECORD – EQ and BIAS switches have no effect during playback.
   g. RECORD – MODE switches all OFF.
5. Verify the correct connections between all components.
6. Prepare the 4-Channel amplifier or integrated receiver for Discrete 4-Channel playback according to its manual of instructions.

Operation

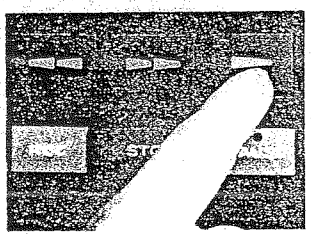
1. Depress the POWER switch to ON.



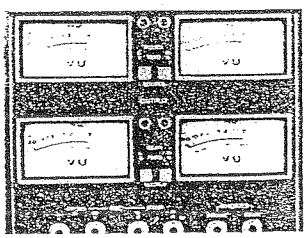
2. Rotate the right-side reel clockwise by hand to remove the slack (looseness) from the tape, raising the Shut-off Arm.



3. Depress the ► button for Playback to begin.



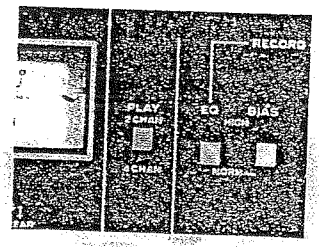
4. Adjust the OUTPUT Level Controls individually for each channel while observing the related VU Level Meter. The loudest passages of music should reach but not exceed a 0 VU indication.

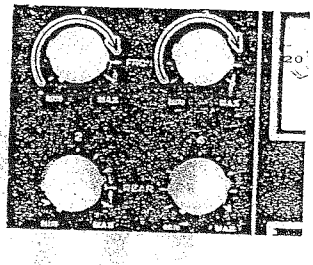


5. Control the listening level by the Volume Controls on your 4-Channel Stereo Amplifier.

6. After completing all audio adjustments on the deck and the amplifier (tone, balance, filter, etc.), you may rewind the tape to "0000" and listen again from the beginning.

Alternate Playback Procedures





The 3340S will play back almost any kind of recorded 1/4 inch tapes, including 4-track/4-channel, 4-track/2-channel, 4-track/monophonic, 2-track stereo, 2-track monophonic and Full track monophonic. Use the basic Playback Procedures (previous page) but modify it according to the instructions in the chart below.

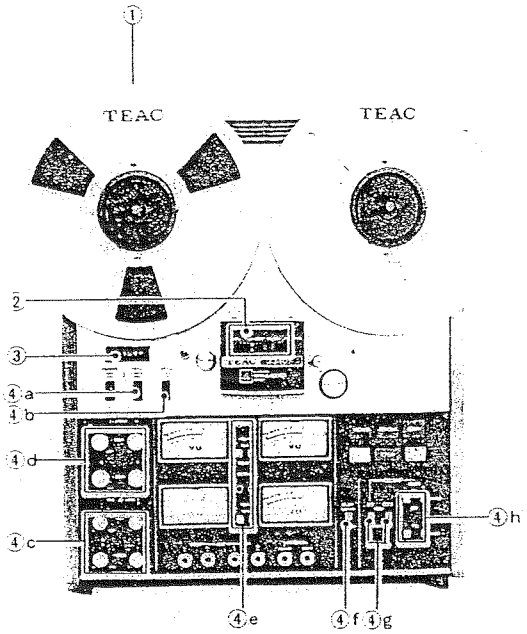
Please note these points regarding the following chart:

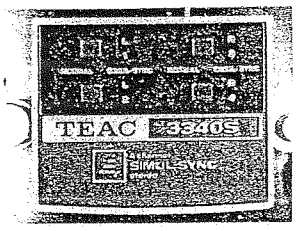
1. Keep the OUTPUT Level controls to MIN unless the ○ marks indicate they are to be used.
2. Keep the OUTPUT Selector switches to SOURCE unless the T indicates they are to be set for TAPE.
3. Monophonic recordings will be heard only from one Front speaker, the side depending upon the track being played.
4. When there is more than one step numbered in the STEP column, you must change the full reel of tape from the right to the left side before beginning the next step.
5. A two-channel stereo amplifier is satisfactory for all except 4-Track/4-Channel playback.

PRE-RECORDED TAPE	PLAYBACK STEPS	PLAYBACK TRACK	OUTPUT LEVEL CONTROL				OUTPUT SWITCH				PLAY SWITCH		HEAD PHONE		VU METER			
			F		R		F		R						F		R	
			1	3	2	4	1	3	2	4	2CHAN	4CHAN	F	R	1	3	2	4
4TRACK 4CHANNEL	1	1.3 2.4	○	○	○	○	T	T	T	T		○	○	○	○	○	○	○
4TRACK 2CHANNEL	1	1.3	○	○			T	T			○		○					
	2	2.4	○	○			T	T										
4TRACK MONOPHONIC	1	1	○				T											
	2	4	○				T				○		○		○			
	3	3		○				T			○		○			○		
	4	2		○				T										
2TRACK (HALF TRACK)	1	1	○				T											
	2	2	○				T						○		○			
2TRACK 2CHANNEL	1	1.3	○	○			T	T										
FULL TRACK	1	1		○				T	T									

Recording Operation

Preliminary Settings

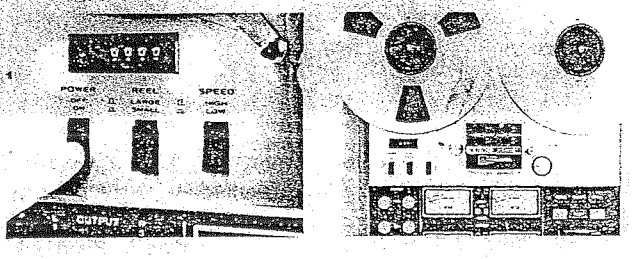




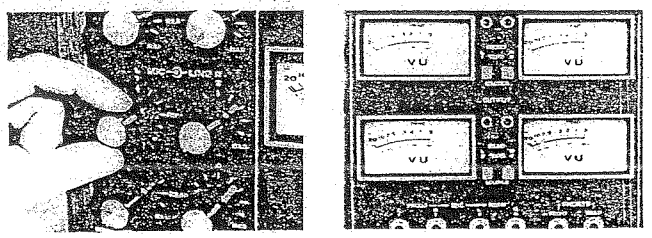
1. Thread the tape.
2. Confirm all Simul-Sync switches to the NORMAL position.
3. Reset the Index Counter for "0000".
4. Set the following switches as indicated:
   a. REEL Size Selector switch to match the reels
   b. SPEED Selector switch to the desired speed.
   c. All MIC and LINE Input Level controls to MIN.
   d. All OUTPUT Level Controls to the 2 o'clock position.
   e. All OUTPUT Selector switches for SOURCE Monitoring.
   f. PLAY Switch for 4CHAN operation.
   g. RECORD-EQ and BIAS switches according to the tape type;
      HIGH for Low Noise/High Output tape,
      NORMAL for conventional tape.
   h. RECORD – MODE switches all ON.
5. Verify the correct connections with your LINE IN source. Check the positioning of your microphones (as appropriate).
6. Prepare the 4-Channel amplifier or integrated receiver for a discrete 4-channel recording output according to its manual of instructions.
7. Use headphones for monitoring a live recording to prevent feed back squeals or howls.

Operation

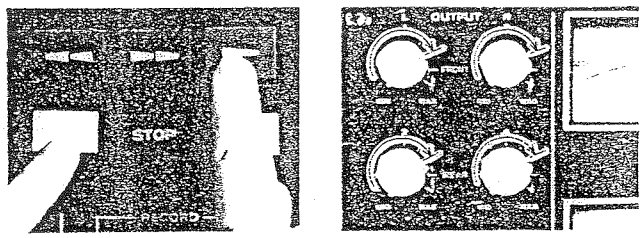
1. Depress the POWER switch to ON.
2. Rotate the right-side reel clockwise by hand to remove any slack (looseness) from the tape, and to raise the shut-off Arm.



3. Start the Line or Microphone source program. Play or perform the loudest passages which will be encountered in the recording.
4. At the loudest parts, increase the MIC or LINE Input Level controls while watching the VU Meter indications one channel at a time. Set the controls so the peak signals reach but do not exceed 0 VU. Repeat this procedure for each channel and leave the controls at their established settings.

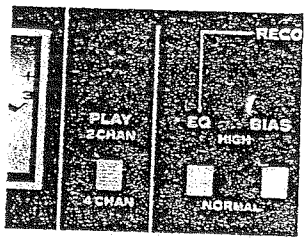


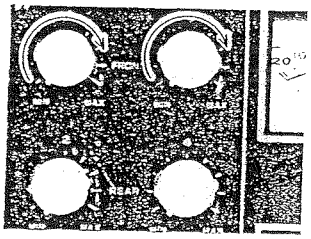
5. Depress the REC and ▶ buttons, holding them both down until the red Record Indicator lamps illuminate and tape travel begins.
6. While recording, switch the OUTPUT Selector switches to TAPE and adjust the OUTPUT Level Controls one at a time until each channel indicates approximately the same between SOURCE and TAPE monitoring positions. Leave the switches in the TAPE position unless special recording techniques apply.

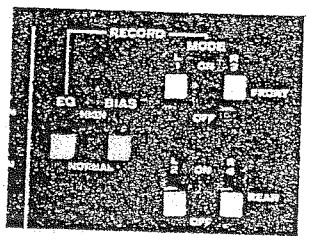


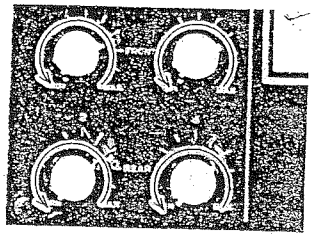
7. Use the PAUSE control for momentary interruptions. The STOP button will disengage the Record mode when you finish recording.

Additional Recording Procedures









The 3340S can be used as a conventional 4-track/2-channel tape deck. For that purpose, place the PLAY switch to 2CHAN and record using channels 1 and 3 (FRONT) only. The RECORD – MODE switches for channels 2 and 4 should be left OFF, and the OUTPUT Level controls and MIC/LINE Input controls for channels 2 and 4 reduced to MIN. The recording procedures should be the same as given under "4 Channel Stereo Recording Procedures" except you will delete all references to channels 2 and 4, as explained above.

The chart below outlines basic switch and control functions for the various recording formats possible with the 3340S. Use it in conjunction with the basic procedures and information given here and elsewhere. For more complete procedures on Simul-Sync recording, see the section following this chart.

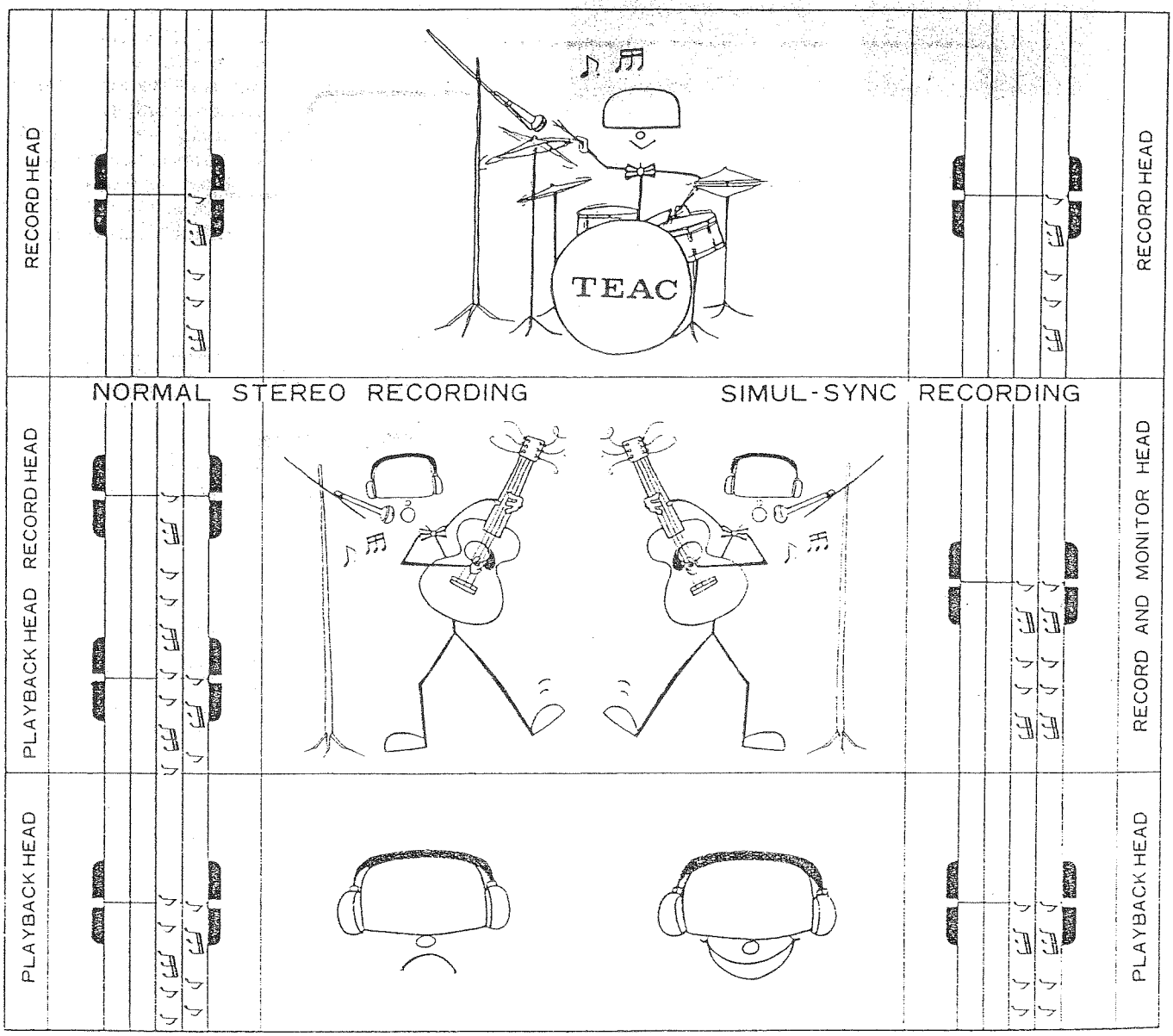
Note the following points:

1. Keep the OUTPUT, MIC and LINE Level Controls to MIN unless the chart indicates their use.
2. A two-channel stereo source is satisfactory for all except 4-track/4-channel simultaneous recording.
3. Use headphones when recording with microphones to prevent feedback squeals or howls in the recording.
4. When there is more than one step numbered in the STEP column below, you must change the full reel of tape from the right to the left Reel Table between steps.

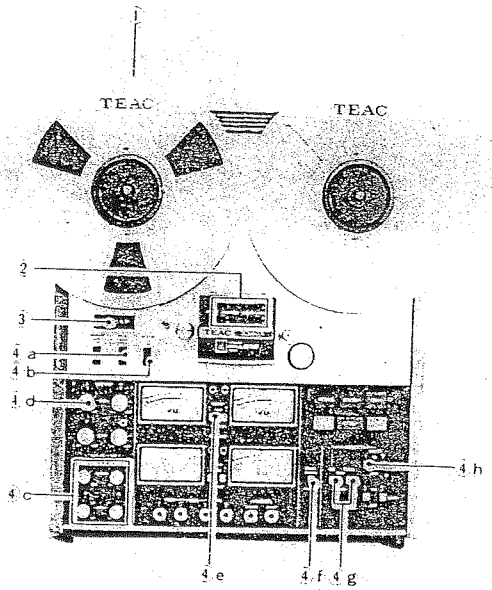
BLANK TAPE	RECORD STEPS	RECORD TRACK	LEVEL CONTROLS: MIC F 1	MIC F 3	MIC R 2	MIC R 4	LINE F 1	LINE F 3	LINE R 2	LINE R 4	OUTPUT F 1	OUTPUT F 3	OUTPUT R 2	OUTPUT R 4	SWITCHES: SIMUL-SYNC 1	SIMUL-SYNC 2	SIMUL-SYNC 3	SIMUL-SYNC 4	RECORD MODE F 1	RECORD MODE F 3	RECORD MODE R 2	RECORD MODE R 4	OUTPUT F 1	OUTPUT F 3	OUTPUT R 2	OUTPUT R 4	PLAY CHANNEL 2CHAN	PLAY CHANNEL 4CHAN	VU METER F 1	VU METER F 3	VU METER R 2	VU METER R 4	HEAD PHONE F	HEAD PHONE R
4TRACK 4CHANNEL	1	1-3 2-4	○	○	○	○	○	○	○	○	○	○	○	○	N	N	N	N	ON	ON	ON	ON						○						
4TRACK 2CHANNEL	1	1-3	○	○			○	○			○	○			N	N			ON	ON	OFF	OFF						○						
	2	2-4			○	○			○	○			○	○	N	N			ON	ON	OFF	OFF						○						
4TRACK MONOPHONIC	1	1	○				○				○				N				ON	OFF	OFF	OFF						○						
	2	4		○				○				○			N				ON	OFF	OFF	OFF						○						
	3	3			○				○				○			N			OFF		OFF	OFF						○						
	4	2				○				○				○		N			OFF		OFF	OFF						○						
SIMUL SYNC 4TRACK	1	1	○		○		○		○		○		○		N				OFF		OFF	OFF						○						
	2	2		○		○		○		○		○		○	SIM CL	N			OFF		ON	OFF	T	S				○						
	3	3	○		○		○		○		○		○		SIM CL	N	SIM CL		OFF		OFF	OFF	T	S				○						
	4	4		○		○		○		○		○		○	SIM CL	SIM CL	SIM CL	N	OFF		OFF	ON	T	T	T	S		○						

4 track, 4-channel Simul Sync Recording

Discrete, separate channels are recorded on each of the 4 tracks in the same direction and synchronized as in 2-channel stereo recordings. From a 4-channel source, the tracks are recorded simultaneously. With the Simul-Sync function, they may be recorded separately and synchronized at the time of recording.



4-Channel Simul-Sync Recording Procedures

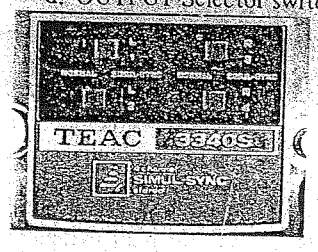


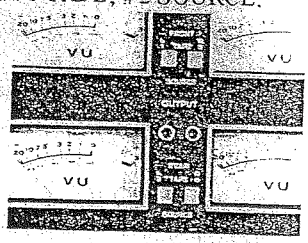
Preliminary Settings

1. Thread the tape.
2. Confirm all Simul-Sync switches to the NORMAL position.
3. Reset the Index Counter to "0000".
4. Set the following controls as indicated:
   a. REEL Size Selector switch to match the reels
   b. SPEED Selector switch to the desired speed
   c. All MIC and LINE Input controls to MIN
   d. Channel L1 OUTPUT Level control to the 2 o'clock position, all others to MIN
   e. All OUTPUT Selector switches for SOURCE monitoring
   f. PLAY switch for 4CHAN operation
   g. RECORD – EQ and BIAS switches according to the type of tape, HIGH for low noise/high output tape or NORMAL for conventional tape
   h. RECORD – MODE switches OFF for all channels except channel L1 = ON.
5. Verify the correct connections with your LINE IN sources and/or check the positioning of your microphones as appropriate.
6. Connect the microphone to the MIC Input #1.
7. Use headphones connected to the FRONT PHONES jack for live recording monitor.

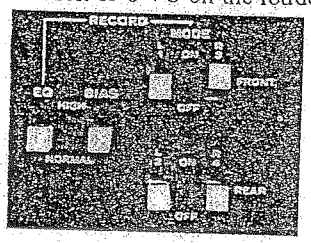
Operation

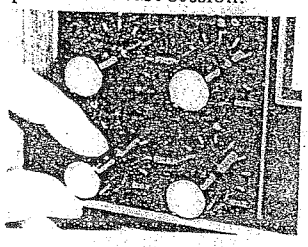
1. Depress the POWER switch to ON. Rotate the right-side reel clockwise by hand to remove any slack (looseness) from the tape and to raise the Shut-off arm.
2. Set the recording level (before beginning recording) by playing or performing the loudest portions of the program. Increase the MIC or LINE Input Level control L1 for a peak reading of 0 VU.
3. Begin recording by depressing the REC and ▬ buttons at the same time, holding until the red Record Indicator light illuminates for channel L1.
4. Rewind the tape to "0000", depress the ▬ button and review the first recording. If satisfactory, rewind again and proceed with step 5.
5. Make the following settings:
   a. OUTPUT Level Controls #1 and #2 to the 2 o'clock position
   b. Simul-Sync switch #1 to the SIMUL-SYNC position
   c. RECORD – MODE switch #1-OFF, #2-ON
   d. OUTPUT Selector switch #1-TAPE, #2-SOURCE.



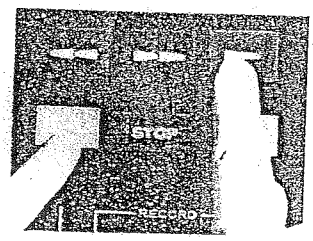


6. Leave the headphones connected to FRONT; change the microphone to MIC jack #2.
7. Reduce the MIC Input Level Control #1 to MIN; adjust the MIC Input Level control #2 for a VU Meter indication of 0 VU on the loudest peaks of a test session.





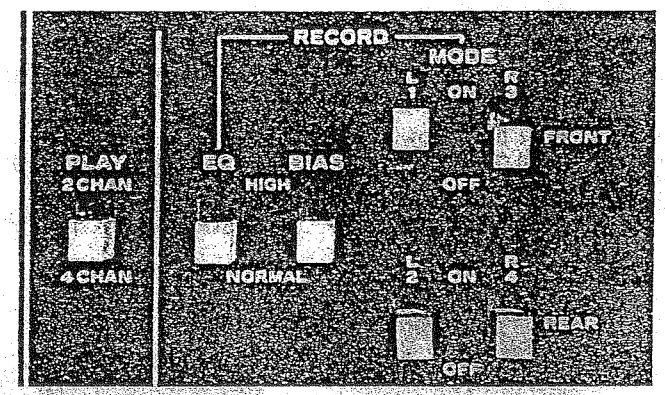
8. Standby to perform; depress the ▬ and REC buttons to start the deck; monitor the Simul-Sync output from track One while recording a synchronized program on track Two.



9. Repeat the changes and procedures as above and in the chart to make successive recordings on the remaining tracks. You may record one, two or three tracks at a time while synchronizing them with an earlier recording. Note, however, the following points:
   a. When SIMUL-SYNC is selected, that channel will not record.
   b. Never change the Simul-Sync switch positions while recording for the surge currents could strongly magnetize the record head.
   c. The original recording will remain on the first track.

Explanation of the Features and Controls

RECORD MODE switches

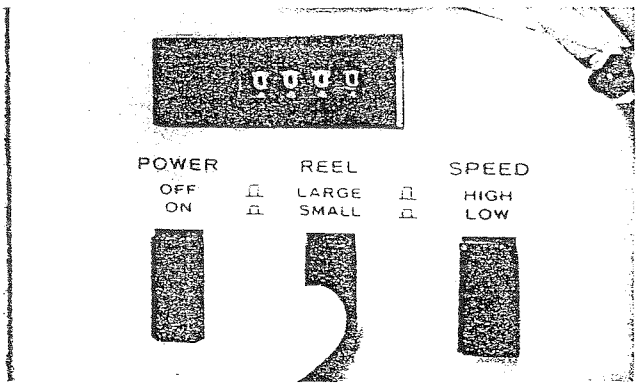


There is a separate MODE switch for each channel and this switch must be ON to record on that channel. Separate recording MODE switches are not only a safety feature, but they also make it possible to perform selective recording on any channel you might select. Keep all switches OFF during Playback and place a MODE switch ON only if you wish to record on that channel.

When the PLAY switch is in 2CHAN, you can record channels L1 and R3 only, regardless of the position of a MODE switch for channels L2 and R4. Similarly, a safety feature in the Simul-Sync switches prevents recording if a channel has SIMUL-SYNC monitoring selected.

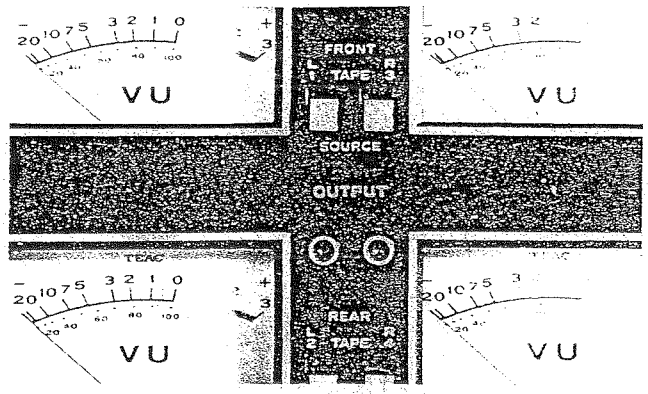
You may go directly from Playback to Record mode if the MODE switch is ON during Playback operation. Without depressing the STOP button, while the tape is in motion, hold in the REC button while you depress the Play button. The red Record Indicator lamp will illuminate. This is called a "running splice" or "punch-in recording".

REEL Size selector switch



The REEL Size selector switch must be set to the proper position corresponding with the size of the reel: LARGE for 10-1/2" reels. SMALL for 7" reels. This switch prepares the transport for the proper back tension, take-up torque and braking which differ between the reel sizes.
Improper REEL Size selection will result in excess tape tension and possibly tape breakage for 7" reels. With 10-1/2" reels, SMALL size selection will cause recording dropouts. With either error, the tape-to-head pressure will be incorrect.

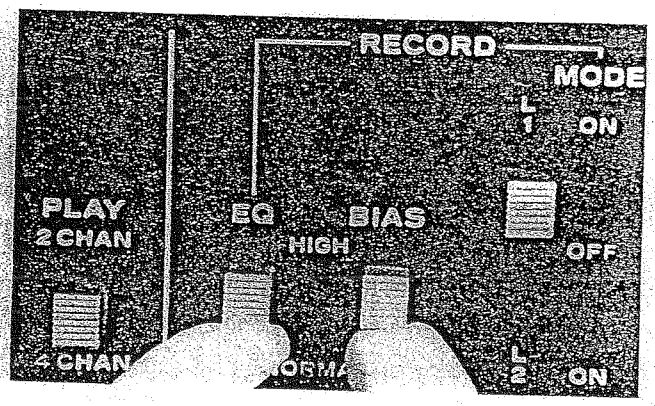
OUTPUT selector switches



The four switches located between the VU Meters are called the OUTPUT Selector switches for they select which Output will be heard at the OUTPUT jacks on the rear of the deck. They also select which signal will be displayed on the VU Meters. In both cases, the selection is between TAPE and SOURCE. TAPE refers to the signal which has already been recorded onto the tape. This signal is obtained from the Playback head when the Simul-Sync switch is NORMAL, and from the Record Head in SIMUL-SYNC. The SOURCE position obtains the selected signal from the Recording Amplifier at the point in the circuit before it is applied to the recording heads. Thus it gives an accurate indication of the strength of the signal being recorded onto the tape.
You will notice that each channel has its own OUTPUT switch, which is an advantage over conventional 2-Channel decks, for you may select the desired type of monitor, TAPE or SOURCE independently for each channel.

Tape monitoring is important while recording to verify the quality of your recording. While source monitor will tell you exactly what is going into the recorder, only tape monitoring will tell you just exactly what you have recorded. It will detect any blank spots on the tape; detect wow or flutter in the deck (if maintenance is required); warn you if the heads have become dirty or magnetized; advise you if the heads are out of alignment; and generally confirm for you that you are making a high quality recording.
Always set the OUTPUT switch to SOURCE when you make the initial recording level settings with the MIC or LINE input level controls. The VU Meters will then display the Input signal, and they will be controlled by the Input controls. Once the level has been set, select the TAPE OUTPUT position and adjust the OUTPUT Level controls to obtain the same reading. Alternate between the SOURCE and TAPE position to compare the quality of the sound through headphones or your stereo speakers.
When using the Simul-Sync function, there are two exceptions to the above. First, the basic channel that is using the SIMUL-SYNC switch position must have the TAPE monitor position selected on its OUTPUT switch. This is because you are not recording on that channel but you wish to hear that channel as in Playback.
Second, for perfect synchronization, maintain the SOURCE position on the remaining channels' OUTPUT switches. This will avoid the slight time lag inherent with normal TAPE monitoring.

RECORD BIAS and EQ switches



Tape recording technology was recently challenged by the improved tapes developed by recording tape manufacturers. These tapes offered improved performance from tape decks, but this better performance was only possible by changing the internal electronic characteristics of the tape deck. The TEAC 3340S has special circuitry for these new low noise/high output tapes as well as conventional circuitry for the regular tapes. The proper circuitry is selected by the RECORD – BIAS and EQ switches.

Tape	BIAS	EQ	Result	Cause
Standard	NORMAL	NORMAL	Recommended Natural Sound	
	HIGH	NORMAL	Hi-Freq-Loss	Over Biased
	NORMAL	HIGH	Hi-Freq-Loss	Improper EQ
Low Noise	HIGH	HIGH	Recommended Natural Sound	
	NORMAL	HIGH	Metallic Sound High Boost	Under Biased
	HIGH	NORMAL	Metallic Sound High Boost	Improper EQ

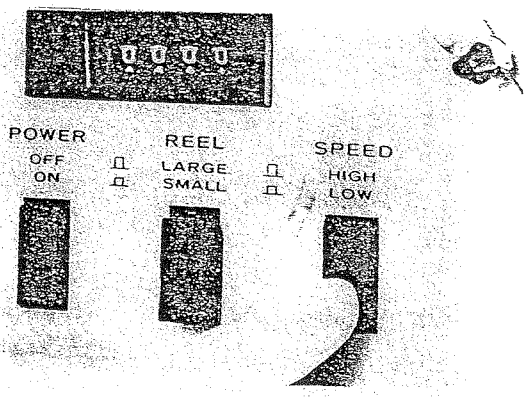
BIAS switching

The HIGH position is preferred for most of the low noise/high output types of tapes. These tapes sell under a variety of different names, but can be recognized as an improved or advanced type of tape. The NORMAL position is ideal for conventional kinds of tape, which still give excellent recording results with the TEAC 3340S.
Some of the newer kinds of tape are designed for use with the lower, NORMAL Bias levels. If you are in doubt as to which level to use your dealer can tell you.

EQ switching

The EQ switch controls equalization for recording. Like the BIAS switch, this has no effect during Playback operation. Generally, you should place this switch in HIGH if the BIAS switch is in HIGH. These switches are set to match the type of tape, HIGH for low noise/high output, NORMAL for conventional tape. You may, through experimentation, find a particular brand which gives better results using HIGH Bias and NORMAL Equalization.

Tape SPEED (High-Low) selector switch



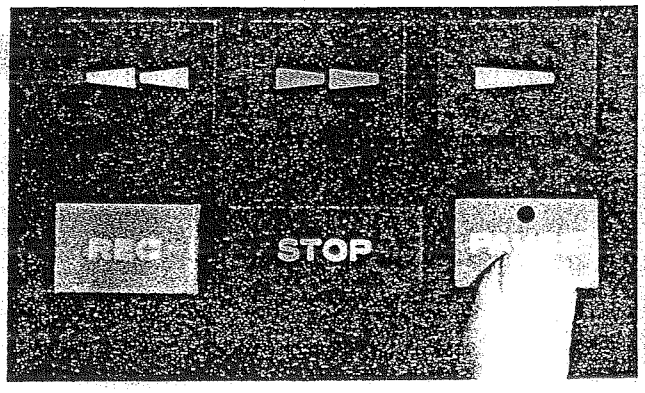
Control of the tape speed is provided for the two common recording speeds: 15 ips (38 cm/s) and 7-1/2 ips (19 cm/s). The slower speed will give you twice the time from a reel of tape as the faster, but with a very slight decrease in performance as indicated in the specifications.

The SPEED selector switch selects 7-1/2 ips when depressed to the (⌴) position. A second push release it back to the 15 ips speed (⌷).

	SW / 1-mil- tapes	REC EQ SW position "NORMAL"	REC EQ SW position "HIGH"	REC BIAS SW position "NORMAL"	REC BIAS SW position "HIGH"
"Low Noise" type	MAXELL UD-35 FUJI FILM FB-151 FUJI FILM FG-150 SONY SLH-Series TDK SD-150 BASF LP-35LH		■		■
	MEMOREX 1800				
	SCOTCH 207 AGFA- GEVAERT PE 36		■		■
Conventional type	FUJI FILM FM-150 SCOTCH 150 or equivalent		■		■

■ marks show the optimum setting of equalization and bias selected. Empty boxes show unrecommended setting.

PAUSE Control button operation



Recording is greatly simplified by using the PAUSE button rather than the STOP button when you wish to temporarily halt the tape transport. The PAUSE mode is engaged by depressing the PAUSE button while recording to keep the deck's recording circuits engaged. Recording is instantly restored by merely pushing the ► (Forward Play) button.

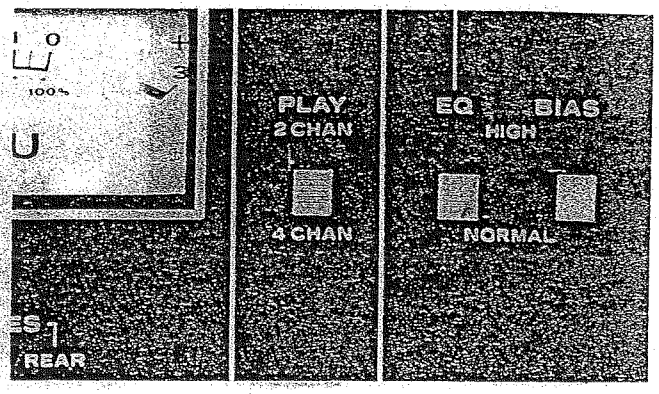
Use the PAUSE button

1. to eliminate commercials when recording from the radio;
2. to eliminate interruptions in the recording during live recording or those caused by changing discs;
3. for keeping switch noises or needle clicks out of the recording;
4. anytime you wish to momentarily stop recording.

If the STOP button is used rather than the PAUSE button, you must depress both the REC and the ► (Forward Play) buttons to resume recording.

During tape playback, the PAUSE button functions only to stop the transport in the same manner as the STOP button.

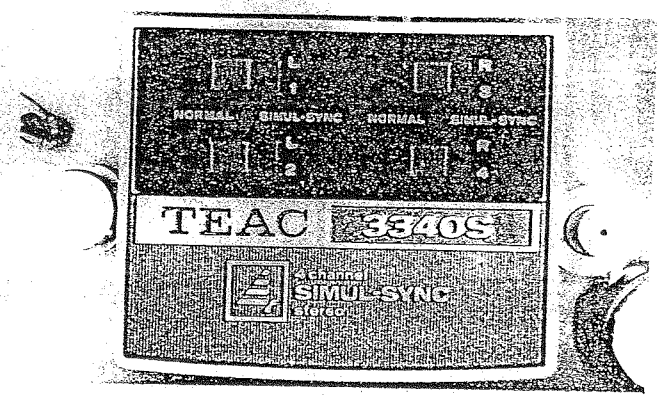
PLAY Channel selector switch



To simplify converting the 3340S from 4-Channel to 2-Channel operation, a PLAY switch has been incorporated which disconnects tracks 2 and 4 when placed in the 2-CHAN position. In that position, the VU Meter lights in the REAR VU Meters are extinguished and the RECORD MODE switches for the REAR Channels become inoperative. Also in the 2CHAN condition, the 3340S may be connected to a regular 2-Channel Stereo Amplifier through channels 1 and 3 for normal 2-channel operation.

The 4CHAN position restores the deck to the 4-Channel/4-Track discrete condition.

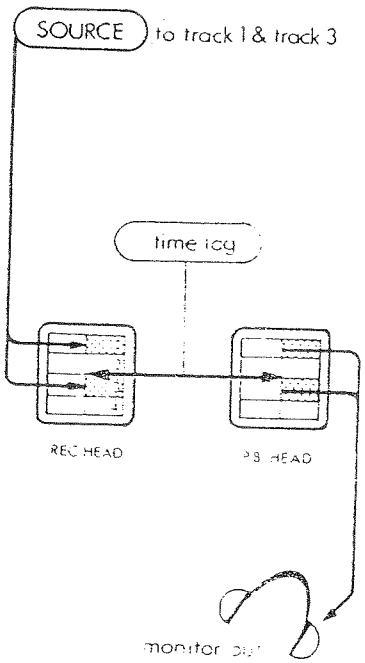
Simul-Sync switches



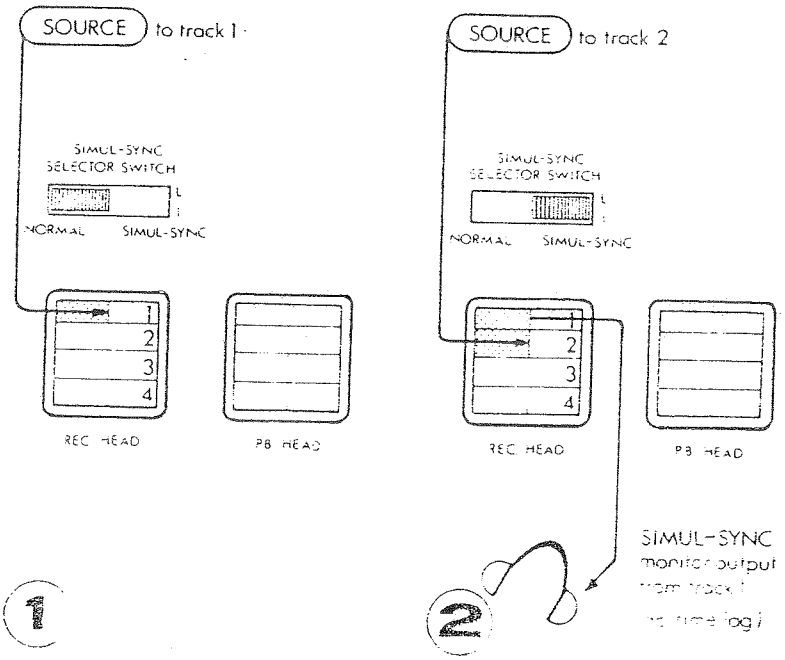
The Simul-Sync switches should always be left in the NORMAL position unless you wish to synchronize the recording of a new track with one already recorded. These switches effectively convert the selected Record head into a playback monitor head when switched to SIMUL-SYNC if the corresponding OUTPUT selector switch is positioned to TAPE.

When the SIMUL-SYNC position is selected, that channel cannot be recorded as a safety device prevents recording on that channel. The Simul-Sync function is only for monitoring to enable track synchronization. Therefore, the sound available from the Simul-Sync head will not be as rich and pure as that from the Playback monitor head. Do not judge the quality of the sound on the tape by the sound from the Simul-Sync monitor function.

Normal Stereo Recording

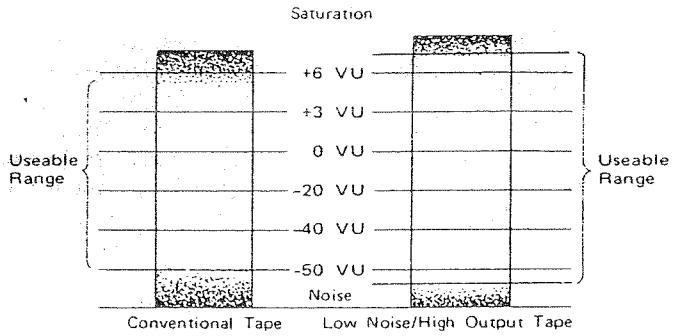


Simul-Sync Recording



Level Setting

Correct level setting of the MIC and LINE Input Controls will assure full frequency response, maximum dynamic range, minimum amount of tape noise and the least possible distortion in your recorded tape. This is based upon the nature of magnetic recording tape which has a useable recording range as shown in the chart below.

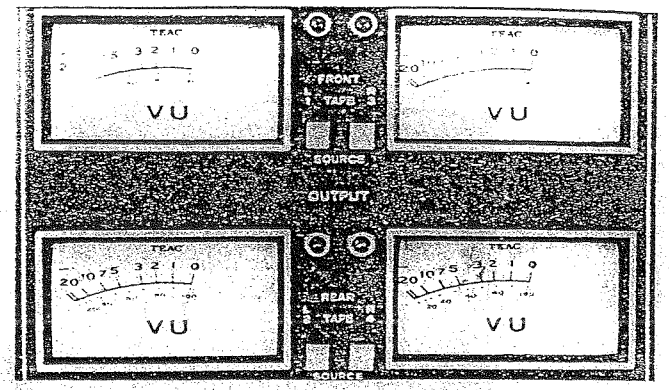


When the input level (an audio signal of a specified voltage) is very low or weak, it must compete with the hiss and noise always present at the same low level on the tape. Stronger input levels are recorded above this tape noise and tend to cover or "mask" it so you hear only the desired sound during playback. If the input level is too high, it enters the region shown at the top of the chart, which represents the limits of the tape. This limit says that no matter how much stronger you record, the tape cannot accept and return the same strength of signal. The result is known as "saturation distortion", and is heard as a garbled or harsh sound. The dynamic range available is found between this distortion at the high end and the noise at the low end. As the chart also shows, there is a difference between recording tape. The tape on the left is representative of conventional or normal recording tape. To the right is the improved kind of low noise/high output tape.

Input Level Controls (MIC and LINE) are used to match the strength of the input signal to the requirements of the tape. If the input signal is a little too strong, these controls must be adjusted to reduce it to prevent distortion. If the signal is a little too weak, the controls must be set to increase the preamplification for raising the signal above the tape's noise level. Of these two limits, the distortion caused by high level inputs is used as a reference for setting the controls. Generally speaking, the shaded area at the upper (right side) of the VU meters' scale indicates that distortion levels are being approached. This area begins at 0 VU.
As the ideal is to record the program without distortion of the loud parts or losing the purity on the quieter parts, the recording level must consider both limits.

Setting the Playback Level

a. Set the OUTPUT switch to TAPE.
b. Set the OUTPUT Level control to approximately the 2 o'clock position.
c. Begin Playback by depressing the ▰ Button.
d. Adjust the OUTPUT Level control so that the loudest passages on the tape indicate approximately 0 VU.



e. Make all listening volume adjustments (for loud speaker output) by changing the stereo amplifier's volume controls.
f. Further changes to the OUTPUT Level controls are not needed unless the VU Meter pointers greatly exceed the original setting.

Setting the Recording Level

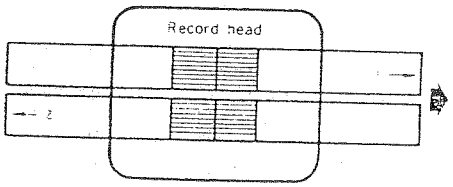
a. Begin recording with the MIC and LINE Input Level controls at the 9 o'clock position or below. If the input is only from microphones, keep the LINE controls fully to MIN. If only LINE Inputs are used, keep the MIC controls fully to MIN.
b. Gradually raise the level by turning the controls clockwise while observing the Meters. Remember to use the MONITOR switch in the SOURCE position.
c. Stop raising the level when each channel indicates slightly over 0 VU on the loudest passages.
d. If there is more than 1 or 2 VU difference between channels, increase the low-reading channel to the same level. Balance the channels to the same peak reference levels.
e. Generally speaking, you should not re-set the level unless the Meters indicate too low or too high:
   a. After changing records or sources, the level should be reset.
   2. During a selection, if the meter goes excessively into the red area, the level should be reset and the recording should be restarted using the new level setting.
   3. While monitoring off the tape during recording, the level should be raised if soft, quieter passages are covered by tape hiss.
f. If you must reduce or change the level while recording, move the controls slowly and gradually to prevent sudden changes in the recording. These changes would be heard as an annoying jump or drop during playback.
g. These three things must be avoided:
   1. Do not let the meter pointers bounce or stick against the peg on the right side.
   2. Tape saturation distortion will be unpleasant to the listeners.
   3. Too low a level will be unpleasantly noisy.

General Recording Information

Tracks, Channels, and Compatibility

Sound recordings are made in a strip on the magnetic surface of a recording tape. This magnetized strip is called the "Track". The full tape width divided by two is called a "2" track recording, and the full tape width divided into quarters is called a "4" track recording.

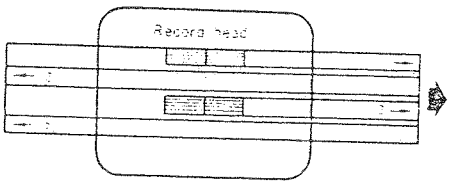
"2" track recording



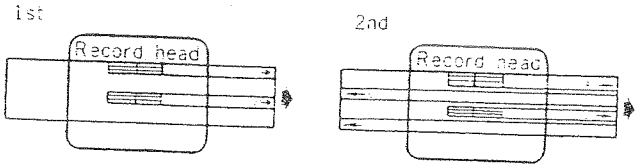
2 Track recording (Monophonic)

2-track recording is mainly employed in radio stations and professional recording studios for stereo recording. In this case both tracks are recorded simultaneously and in the same direction. 2-track recording in the home is usually done one track at a time and is played back monophonically.

"4" track recording (Stereophonic)

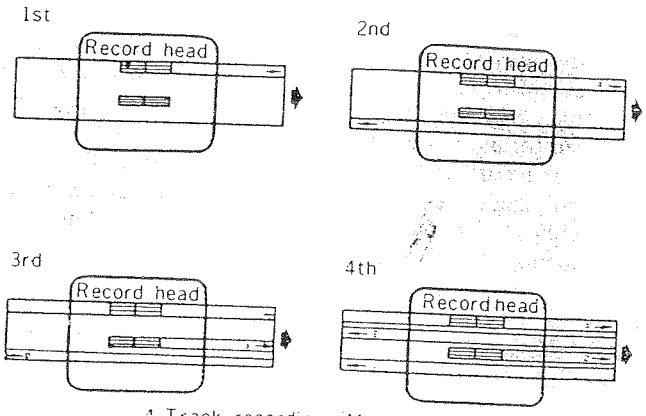


4 Track recording Stereophonic



In this mode two tracks are recorded simultaneously. On the first pass of the tape, tracks =1 and =3 are recorded. The left and right reels are then interchanged and tracks =2 and =4 are recorded. The left channel sound will be on tracks =1 and =4 and the right channel sound will be on tracks =2 and =3. Four track recording in stereo is the most widely used recording method today.

"4" track recording (Monophonic)

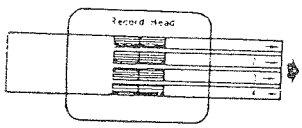


4 Track recording (Monophonic)

In this mode, each of the four tracks is recorded individually. At the end of the tape the reels are interchanged between left and right and the next track is recorded. The order in which the tracks are recorded is #1, #4, #3 and lastly #2.

Playback Sequence	1st	2nd	3rd	4th
Track used	1	4	3	2
Direction of tape run	▶	◀	▶	◀
Level control knob	inner L	inner L	outer R	outer R
Level meter pointer	left	left	right	right

"4" track recording (4-CHANNEL STEREO)



In this mode all 4 tracks are recorded simultaneously from left to right. Each track contains discrete but synchronized program material. A 4 section playback head is utilized and 4 amplifiers and 4 speaker systems are required. Tracks 1 and 3 are called "Front" left and right respectively, tracks 2 and 4 are called "Rear" left and right. Front and rear correspond to the usual speaker placement in the room relative to the position of the audience. 4-track 4-channel tapes must be played on a player incorporating a 4-track head and four independent playback amplifiers.

Playback compatibility

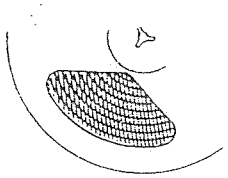
A four track stereo tape deck can playback both 4 channel and 2 channel tapes and from the point of compatibility has the widest possible range of utilization. When playing a 4 channel stereo tape on a 2 channel deck, tracks =2 and =4 cannot be heard.

The tape

The length of tape recording time is determined by the reel diameter and the thickness of the base material. The use of a 1 or 1-1/2 mil base tape is recommended for 4 track high fidelity recording. Polyester base tape is preferred for use in humid or extremely dry areas.
The recording time indicated in the chart to the right is for one single pass of the tape. The total recording time will be either two or four times that indicated, depending upon the method of recording.

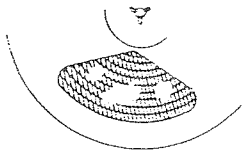
	10½" reel		
Base	Tape Length	Recording time	
		7½ ips	15 ips
1½ mil	2,400 feet	60 min.	30 min.
1 mil	3,600 feet	90 min.	45 min.
½ mil	4,800 feet	120 min.	60 min.
½ mil	7,200 feet	180 min.	90 min.
	7" reel		
Base	Tape Length	Recording time	
		7½ ips	15 ips
1½ mil	1,200 feet	30 min.	15 min.
1 mil	1,800 feet	46 min.	23 min.
½ mil	2,400 feet	60 min.	30 min.
½ mil	3,600 feet	90 min.	45 min.

Good quality tape wound on correct reel

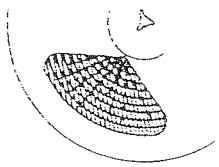


Tape condition can be judged by the appearance when wound on the reel and viewed from the side

1) Is it neatly wound?
2) Are there steps or irregularities in the winding?
3) Is the color of the base uniform as seen from the side?
4) Is the tape edge smooth?



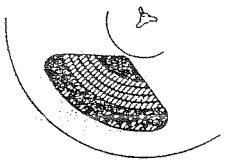
Fungus indicates old tape stored for a length of time under high humidity. Sections where the splicing tape has been applied are especially prone to support fungus growth.



Creases extending from the center positively indicate uneven stretching. This is caused by differences in temperature and humidity.

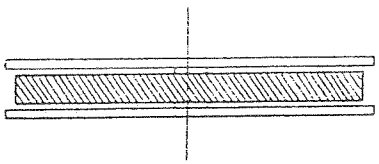
Selecting the tape and reel

For recording, new tape is not necessarily needed. If the tape is of good quality the erase head will erase the previous recording as the new recording is made. However, avoid using tapes whose coating is worn, peeled off or stretched.



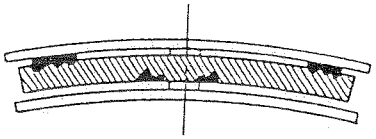
If the color of the winding is different throughout the reel it is an indication that two different types of tape have been spliced in. In some cases, the color may differ according to production lot even for the same type tape, or between opposite sides of the wound tape.

Normal condition reel

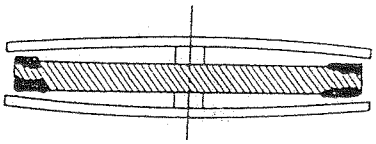


The use of a good quality reel is an important point in preventing damage to the tape edge or uneven stretching. Always use reels of the same diameter.

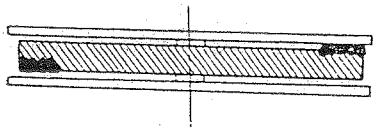
Reels which damage tape



Reels warped in the shape of a bowl will bend the tape, resulting in the so-called uneven stretching, and are sometimes encountered even with new reels.

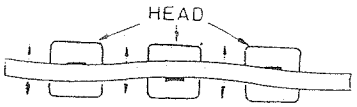


The reel may be warped in a Yo-Yo shape due to tight winding. This will not occur in reels made of hard plastic or whose hub is perfectly fitted.

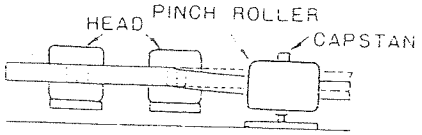


If the hub is not truly perpendicular to the flange, the wound tape will be pressed against the flange resulting in a seaweed form of tape.

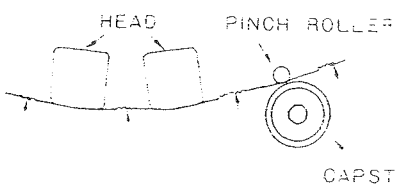
Judging tape condition by how it travels



Tapes which snake up and down between the guides and over the heads will inevitably lead to level fluctuation and azimuth misalignment.

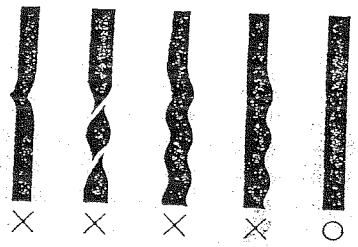


Unevenly stretched tape which travels either higher or lower than the true path of the tape will in extreme cases drift off the pinch roller.



Snaky motion of unevenly stretched tape indicated by arrows.

Hang down a length of tape to check straightness



Tape Storage and Handling

Magnetic tape recordings are superior to discs because, with proper care, they can be kept and relayed for many, many years without degradation. During playback, the biggest danger to the recording is a magnetized or dirty point on the deck, such as a head or capstan. Care for the recording and the tape must be continued even after playing it by following these guides:

1. Protect the tape from dust

Keep it in the plastic bag and the original carton.

2. Protect the tape from heat

Do not place it on top of audio components. Store it in a cool room but also avoid freezing temperatures. Keep it out of direct sunlight.

3. Protect the tape for storage

Tremendous pressure is built-up on the inner windings of tape. This pressure is acceptable unless you apply additional stress by bending or squeezing the sides of the reels. This problem is increased if the windings are irregular. Frequent starts and stops will cause uneven winding pressure and the tape will be unevenly wound from side to side within the reel. Slight pressure on the sides will then break or crack the edge of the tape. Therefore, always prepare your tapes for longterm storage by re-winding them using the ► playback operating speed. The ►► and ◄◄ modes apply somewhat uneven tension to the tape.

4. Protect the tape from strong magnetic fields

Just as a Bulk Eraser will remove the recorded material, so will a permanent magnet or the voice coil of a speaker destroy your favorite recording.

5. Protect the tape from humidity.

Fungus growths will cause irreparable damage to the tape if stored in damp places. Keep the tape in the original plastic bag, but insure that it is dry before storing.

Editing and Splicing Tape

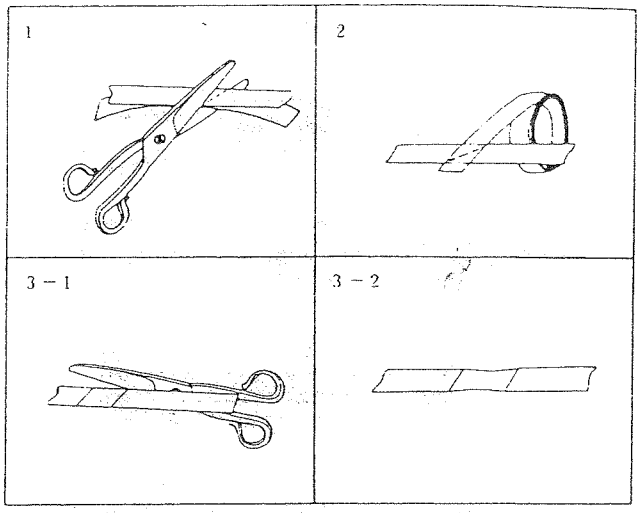
IMPORTANT

Editing will destroy or seriously "cut" any material recorded on the other tracks of the tape. If editing is anticipated, record only on one track of the tape. After editing, material can then be copied onto the other tracks.
When attaching blank "leader" tape onto your tapes, follow the same procedures given here for splicing.

Editing tape is a fascinating way to make creative recordings for 1st basic reference track by eliminating and joining different segments of a recording into one pleasing tape. Long, silent or boring segments can be removed by proper editing. In fact, as editing is a creative exercise, there is only your imagination and the length of tape to limit the possibilities. Of course, broken tape can also be easily mended by splicing, one of the steps required in editing. The first step is to precisely locate the section of tape to be removed. This can be done by manually cueing the tape.

1. Remove the cap from the Pinch Roller.
2. Remove the Pinch Roller.
3. Hold the right, take-up reel with your hand while you depress the ► (Forward Play) button.
4. Move the tape back and forth by manipulating the reels until the precise point for editing is positioned at the Forward Play tape head.
5. Mark the spot on the tape. Repeat this procedure for the end of the selection to be edited.

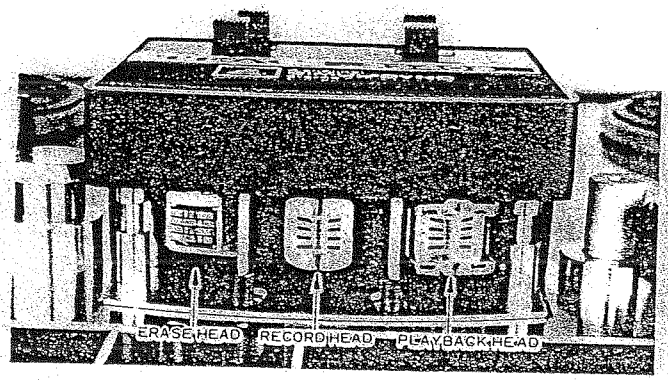
Next, use an Editing Block or a pair of scissors (demagnetized) to cut the tape at the places marked.
Finally, the splicing is to be done. A Tape Splicer is preferred, but a pair of scissors that have been demagnetized will be satisfactory. Before you proceed, have some commercially avaialble Splicing Tape available. Never use Cellophane (Scotch Brand) tape, for that adhesive will spread and contaminate your heads.



1. Overlap the ends to be spliced by approximately 1/2 inch and align them carefully.
2. Cut through the center of the overlapped area at a 45 to 60 degree angle.
3. Butt the slanted ends of the cut tape together. Use a straightedge or ruler to assure a perfectly straight alignment.
4. Apply splicing tape to the shiny base side of the tape as shown in diagram #2. Note that splicing tape goes perpendicular to the recording tape.
5. Place the spliced connection on a hard surface and rub the splicing tape briskly with your fingernail or other hard smooth object. This is to assure a firm adherence to be splicing tape.
6. Trim off the excess splicing tape as shown in Fig. 3-1 and 3-2. Note how to cut slightly into the recording tape to insure complete removal of the excess.

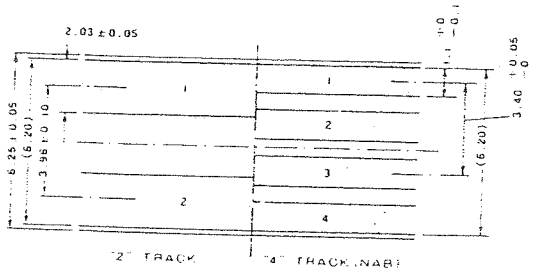
Erasing Recorded Tape

One of the advantages of recording tape over records is that it can be recorded over and over again. This raises the question of how is the previous recording removed. Here are three different ways to erase earlier recorded material.



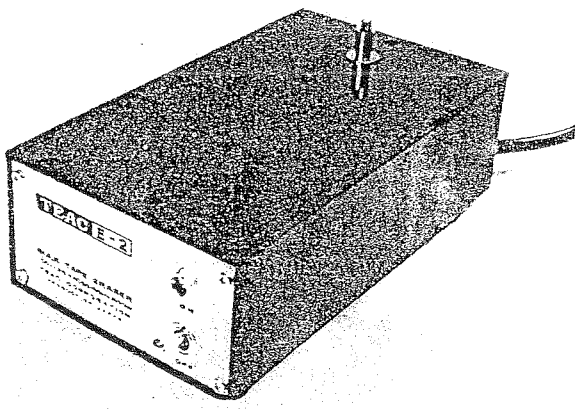
Simultaneous erasing and recording

As the photo shows, there is an Erase head located to the left of the Record head in your deck. Its function is to purge the two tracks of all previous recording by means of a strong alternating magnetic field immediately before the tape reaches the Record Head. This is done automatically whenever you record.



Erasing on the deck

You may erase the entire tape two tracks at a time without recording by rotating the MIC and LINE Level controls fully counterclockwise and/or disconnecting the Input connections. Start the deck in the 4-channel Record Mode and all tracks will be erased.



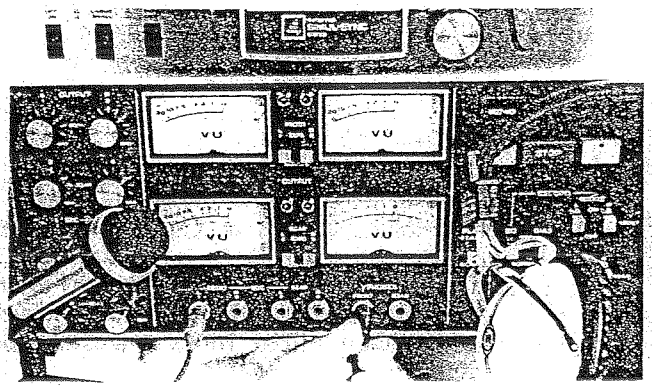
MODEL E-2 Bulk Eraser

Bulk Erasure

TEAC's Model E-2 bulk Tape Eraser (or its equivalent) will quickly erase the entire tape in a few seconds. This is the only satisfactory way to erase a previously recorded "2" track or "Full" track tape to prevent undesirable "cross-talk" or chatter from the former material. For complete directions on how to use, consult the instruction supplied with the Bulk Eraser.

Special Recording Information and Procedures

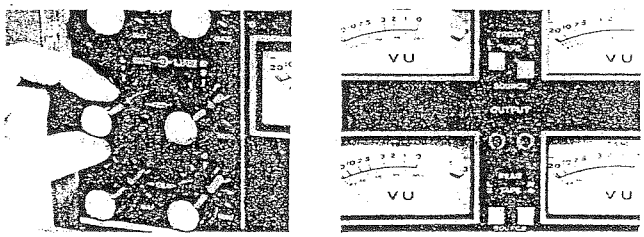
Recording with Microphones



Live Recording

High Quality recordings begin with high quality microphones. The TEAC 3340S will perform excellent live recordings from any high quality microphones (such as TEAC's MC-201) with impedances from 600 to 10,000 ohms.
Low impedance microphone of 150–600 ohms will also work satisfactorily.

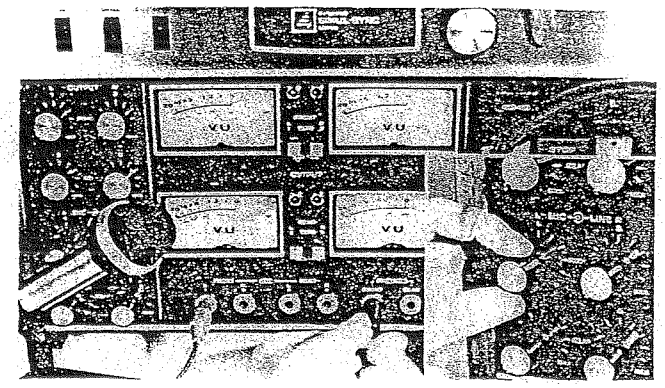
1. Connect the microphones to the MIC Input jacks on the front panel.
2. Use headphones for monitoring to prevent feed-back from developing whistles or squacks in the recording.
3. Select OUTPUT – SOURCE.
4. Reduce the LINE Level control to MIN.
5. Adjust the MIC Level control for the proper recording level on the VU Meters.



6. Other recording procedures are the same as Recording Procedures on Pg.10.
7. Use the PAUSE control during interruptions in the recording.

NOTE: Experimentation, experience and extensive study will be required before you can duplicate the accomplishments of a professional studio recording. Microphone selection, placement of the microphones, and the room acoustics must all be considered in addition to recording levels and special techniques.

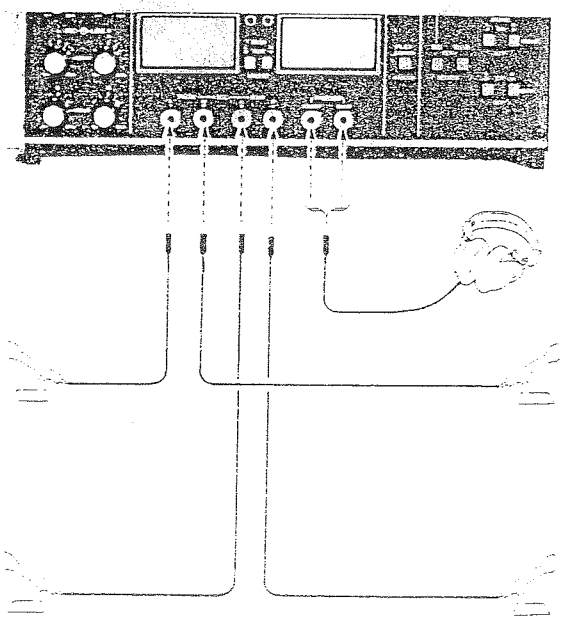
MIC/LINE Mixing



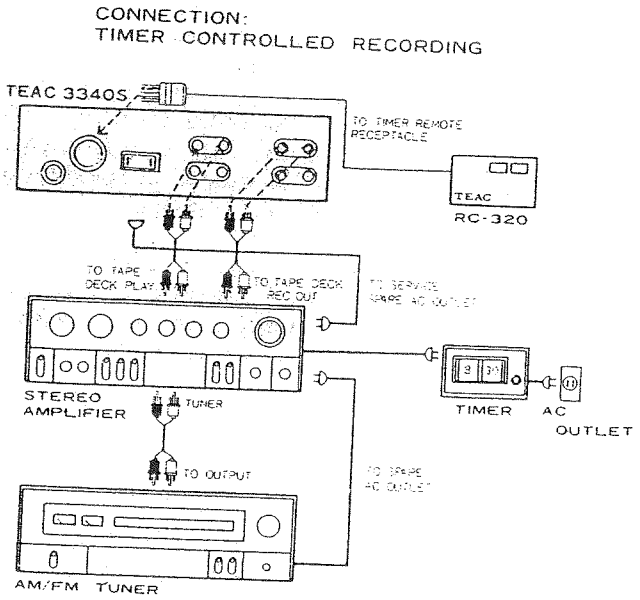
You may add your commentary to a musical recording, add music background to a live recording, and perform many other interesting recordings by combining the procedures for Live Recording with Microphones and the standard recording procedures for Line Inputs. Connect the microphones to the MIC Jacks on the front of the deck. Consider these following points while recording.

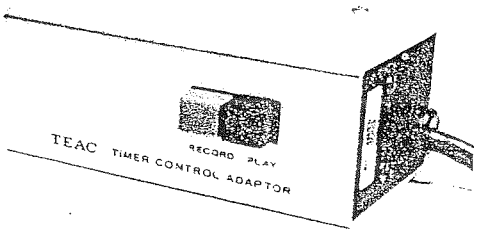
1. The use of headphones is recommended to prevent feedback squeals and whistles.
2. Use the SOURCE selection of the OUTPUT switches to simplify synchronization of the MIC and LINE Inputs.
3. Adjust the MIC and the LINE Level Controls to balance the relative levels between the separate inputs while keeping the total input level within the limitations indicated by the VU Meters.
4. If the Line Input is Dolby-encoded, please note that the MIC Input will not be Dolbyized, thus it will sound unnatural during playback.

TEAC 3340S



Timer Controlled Recording

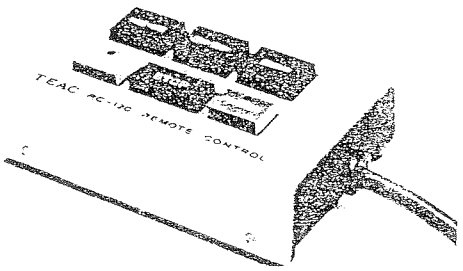




RC-320 TIMER CONTROL ADAPTOR

TEAC's optional accessory RC-320 Timer Control Adaptor will work with almost any electrical-switching clock timer to start recording on the TEAC 3340S at a preset time. Remove the Dummy Plug from the rear of the deck to connect the RC-320. Follow the instructions supplied with the RC-320. Remember to make all the preparations for recording and set the recording level before setting the clock timer. You might also want to reduce the speaker volume level on your amplifier. This accessory may be left connected while using normal procedures with the 3440S provided that both buttons on the RC-320 are disengaged (up).

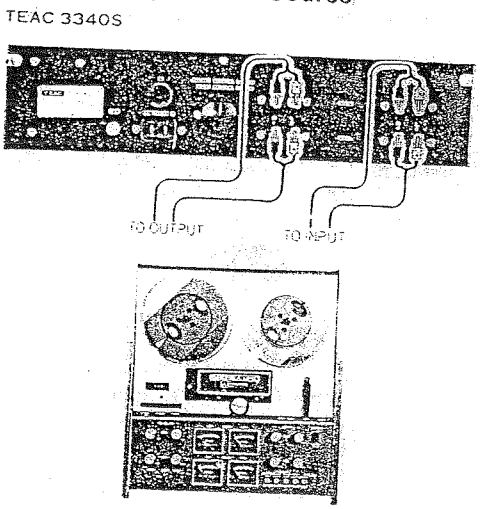
Remote Controlled Recording



RC-120 REMOTE CONTROL UNIT

TEAC's optional accessory RC-120 Remote Control Adaptor gives you total control over the 3340S transport controls from up to 15 feet away. Even recording and PAUSE can be engaged from the comfort of your easy chair. Remove the Dummy plug on the rear of the deck to install the RC-120 plug. Follow the instructions supplied with the Adaptor. This accessory may be left connected while you use the controls on the 3340S.

Recording Directly from a Source

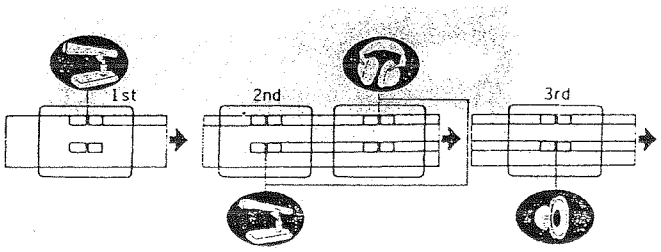


Although the connections shown on page 00 of this manual show only connections to an amplifier, you need not limit yourself to that source for recording. In fact, almost any standard audio component may be connected from its output to the LINE IN jacks of the 3340S with the following exceptions.

1. Never connect the Speaker output of any amplifier to the deck.
2. Turntable and phonograph outputs need special amplification and equalization from an amplifier before they can be recorded.
3. DIN cords are not useable with the 3340S.
4. Electrical pickups for musical instruments, electric guitars and electronic organs are generally unacceptable. Check with your dealer or the unit's instruction manual before attempting to record directly from these sources.

Sound-on-Sound Recording

The technique for recording sound-on-sound is basically a method of mixing the monophonic recording from one track with a subsequent recording on another track. This procedure can be repeated several times between tracks until the desired blend is achieved. To facilitate this procedure, TEAC has an optional accessory, the AX-10 Sound-on-Sound and Stereo Echo unit, which is recommended. Two of these units will give complete flexibility and reduce the need for changing connections between recordings.



When recording Sound-on-Sound, please note that the OUTPUT level control of the channel being copied effects the recording level to the new channel. Also, if the new, mixed recording is unsatisfactory you may record it again, for the original recording remains on the first track.

Sound-on-sound recording step chart

	1st	2nd	3rd
MIC IN or LINE IN jack	L	R	L
MIC or LINE Level Control	L	R	L
MONITOR SELECT Switch	SOURCE and TAPE	TAPE	TAPE
VU Meter	L	R	L
REC. MODE SELECT Switch	Left	Right	Left
OUTPUT	L	L	R
Headphone	Left	Left	Right

Recording with the Dolby Noise Reduction System

Dolby Laboratories Inc. have developed an effective Noise Reduction System which reduces tape noise and hiss by as much as 10dB. This system is available in separate units from TEAC Corporation in its model AN-300 (4-channel) and other 2-channel models (AN-180, etc.).

NOTES:

1. The Dolby NR unit is connected directly to the 3340S. All audio cables connect from the amplifier or other sources to the Dolby NR unit.
2. Unless otherwise stated in the Instruction Manual for the Dolby NR unit, all the instructions in this 3340S Manual are still applicable. The type of tape used in the recording will determine the position of the BIAS and EQ switches.
3. Upon completion of the Dolby calibration of the 3340S OUTPUT Level controls, the calibrated setting may be marked on the panel of the deck with a marking pencil.

Special Effects with Optional Accessories

Using TEAC's optional AX-10, AX-20 or similar items for mixing and connecting the outputs together, it is very easy to create a variety of special effects with the 3340S. These include (but are not limited to) Pan Pot Effects, "Normal" Echo, "Cross" Echo, "Psuedo-Quad" Echo, 4-Channel "Rotating" Echo, and others. Also, the 3340S lends itself creatively to Backwards Recording, Dual Speed Recording, Language Laboratory work and other uses.

For an interesting guide to some of these effects, see the booklet, "Meet the Creator", printed by and available from TEAC Corporation of America, and also available from some TEAC dealers in the United States.

Special Playback Information

Playback of Dolby-encoded Tapes

To enjoy the benefits of the Dolby Noise Reduction System, both recording and playback levels must be matched. Therefore, "Dolby-encoded", "Dolby processed", or "Dolbyized" tapes must be played back through a properly calibrated Dolby Noise Reduction unit, available from TEAC and other companies.

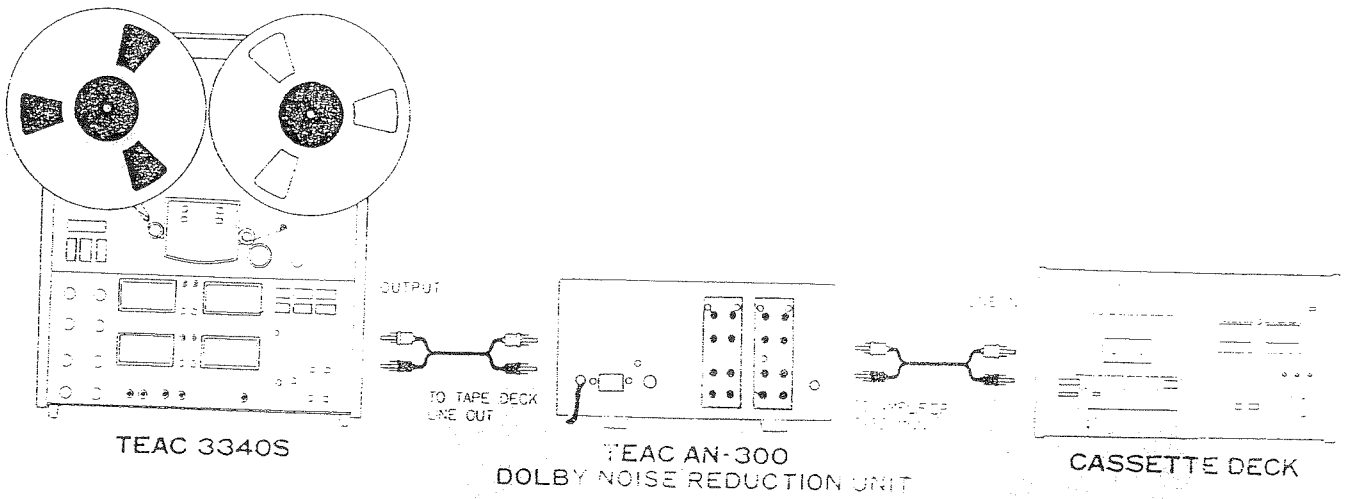
Please note these points about Dolby NR and the 3340S.

1. The Dolby NR System is not a filter and will not eliminate noise present in the original source, such as scratches. or clicks.
2. Improvements in recording tape itself (such as low noise/high output tape) have significantly reduced the inherent tape noise level. Although the Dolby NR System is still contributing to an improved signal to noise ratio when using these tapes, the advantage of the system may not be so readily apparent.
3. TEAC has developed a 4-channel Dolby Noise Reduction Unit, the AN-300 (optional unit) which is especially designed for 4-channel stereo recording and playback. It is also ideal for 2-channel stereo use.

Making Copies from the TEAC 3340S

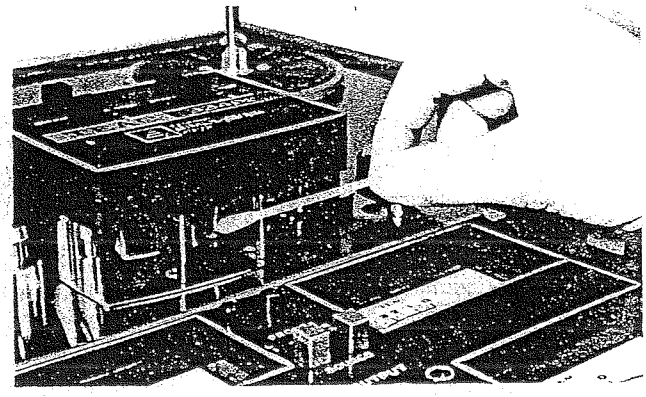
Here are some guidelines for avoiding noise build-up and other problems.

1. Use the highest recording levels possible without exceeding the saturation points of 0 VU or +3 VU. Set the playback level first so that it does not exceed the reference. Then set the recording level using source monitor to exactly the same VU readings.
2. Before copying Dolby-processed tape, use the Dolby Level Calibration Tape to set the playback output level on the 3340S. Then replay the Calibration tape on the 3340S to set the Input Level on the recording deck to 0 VU. Once calibrated, do not change the setting of the OUTPUT Level Control on the 3340S or the Input Level Controls on the other deck. Do not use a Dolby NR Unit between the two decks. If one is connected, keep its DOLBY NR switch to the OUT position.
3. When making Dolbyized copies onto a cassette from the 3440S, record level differences prevent accurate Dolby Level calibration between the decks. Use a separate Dolby NR Unit between the decks, place its Dolby NR switch IN, and select the playback mode. Have the built-in Dolby system on the cassette deck reprocess the program while recording. Only 2-channel copying is possible.
4. To make 2-channel copies of a 4-channel recording, it is recommended that you use a Mixdown Panel or Audio Mixer to establish the desired balance without losing the required output level from each channel. TEAC's optional accessories designed for this purpose include the AX-20 Mixdown Panel and the AX-300 Audio Mixer, both capable of the proper mixing action.



* "DOLBY" and the Double D symbol "DD" are trademarks of Dolby Laboratories, Inc.

Cleaning of the Heads



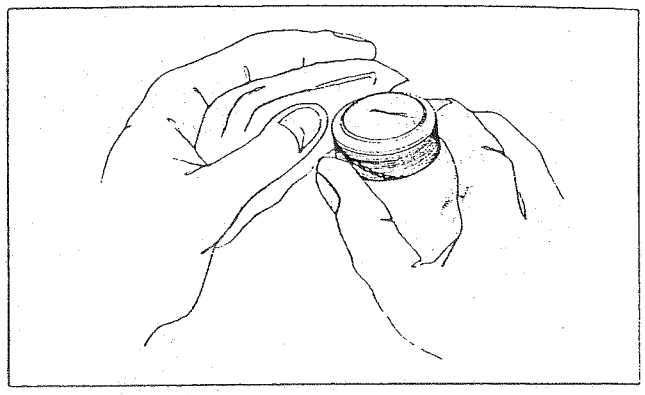
The single most important point in tape deck maintenance is frequent and proper cleaning of the heads. The heads should always be cleaned before making important recordings and at least once every 8 hours of use (record or playback). Dirty heads will cause a reduction in high frequency response, irregular head wear, drop out and in extreme cases may cause the deck not to record at all. The small amount of time and effort required will be more than compensated for by the higher quality of recording and reproduction available if these procedures are followed.

Commonly used cleaning fluids are chlorothane, absolute (Anhydrous) alcohol and TEAC Head Cleaner (Fluid "A" in the TZ-261 kit).
Chlorothane is non-flammable and has excellent cleaning properties. Alcohol is harmless but is combustible and its cleaning properties are lower. TEAC Head Cleaning Fluid is non-toxic, non-combustible and has excellent cleaning properties and its use is recommended.

Using a stiff cotton swab or a piece of gauze dipped in cleaning fluid, rub the entire head surface, being cautious not to scratch it. Repeat the process on each head until all discoloration and tape oxides are removed. Clean all metal parts over which the tape passes, such as capstan shaft, tape guides, tape lifters, etc.

The cotton swabs should have a rigid shaft, a satisfactory job cannot be accomplished with the slender flexible types.

Cleaning of the Pinch Roller



After prolonged use the pinch roller will accumulate a film of oxide. Use only Fluid "B" from the TEAC TZ-261 kit as it is especially formulated for cleaning rubber surfaces. Do not use chlorothane as it will cause deterioration of the rubber roller.

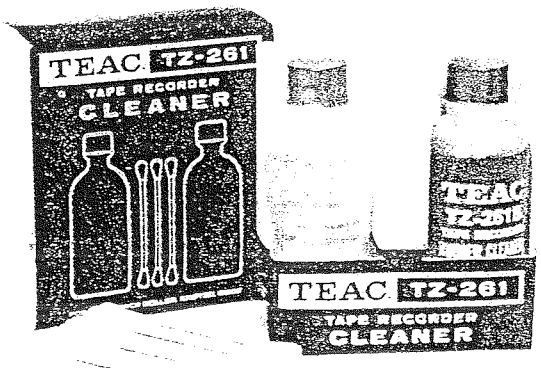
NOTE: The newer tape formulations leave a gray or white residue which is difficult to detect. Regular cleaning schedules should be established rather than relying on observation.

Cleaning of the Cabinet

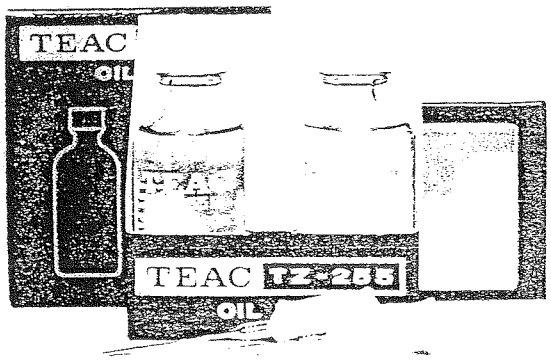
Ordinary furniture cleaner and polish can be used to maintain the attractive finish.

Cleaning the Faceplate

A soft cloth and mild cleaning fluids (non-abrasive) can be used to restore the luster of the faceplate. An oil-damped cloth will also give good results, but take care not to get oil on the tape path components such as the pinch roller, capstan, etc.

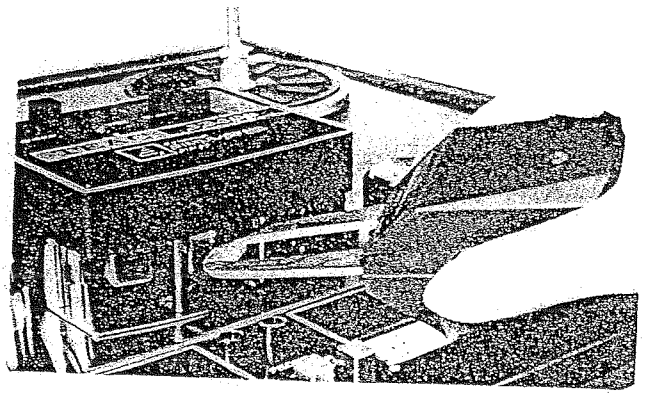


TZ-261 HEAD AND RUBBER CLEANER



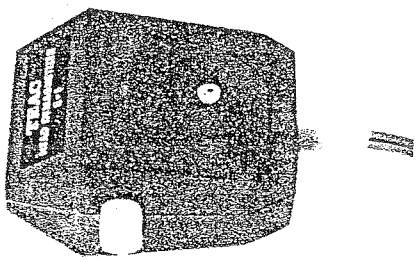
TZ-255 OIL KIT

Demagnetizing



During long periods of use, the heads will become slightly magnetized. As a result, the high frequency will decrease, noise will develop, or in extreme cases the high regions will drop out or introduce noise into your valued pre-recorded tapes. To keep your recorder operating at optimum efficiency the heads should be demagnetized at least once every 50 hours of use, with a TEAC Model E-1, Head Demagnetizer, using the procedures outlined below:

1. Turn off power to the tape deck.
2. Attach the plastic protectors to the pole tips of the Demagnetizer.
3. Plug the Demagnetizer cord into an AC outlet.
4. Depress the Demagnetizer power button, bring the tip close to the head and slowly move it up and down 4 or 5 times.
5. Slowly draw it away from the head.
6. The same demagnetizing procedure is followed on each head, capstan shaft, and the guide posts.
7. After finishing the above procedure on each head, turn off power to the Demagnetizer ONLY after it has been drawn at least 12 inches away from the heads.

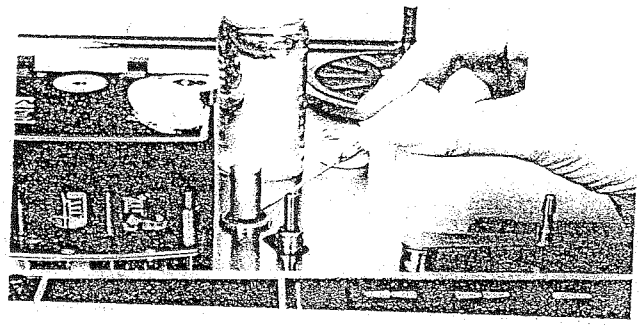


E-1 HEAD DEMAGNETIZER

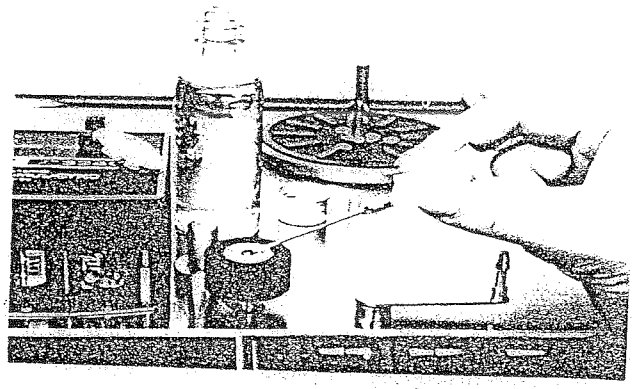
Lubrication Procedures

Lubricate points listed below at every 1,000 hours of operation or once a year if equipment is infrequently used. Use TEAC TZ-255 oil or equivalent.

CAPSTAN SHAFT: Remove the dust cover by turning it counterclockwise with fingers, apply approximately 2 drops of oil to oil-chamber felt.



PINCH ROLLER SHAFT: Uncrew the cap with fingers, apply one drop of oil to the shaft bearing.



MOTORS: Each motor (capstan motor, 2 reel motors) has two oil tubes attached. Apply approximately 1 cc of oil to each motor tube. If oil "backs up" into the oiling tubes, or is not accepted by the motor, do not force it into the motor.

CAUTION: Do not apply excessive quantities of oil, over lubrication can be a source of difficulty. Do not apply oil to any rubber parts. Should oil be spilled onto rubber parts, remove immediately with TEAC rubber cleaning fluid.

Lubrication should be accomplished immediately after use while equipment is still warm.
After applying lubricant, leave tape deck in horizontal position for 1–2 hours until oil is thoroughly absorbed.

Possible Troubles and How to Cure Them

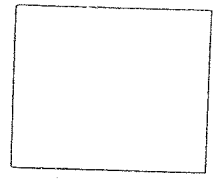
Problem	Cause	Corrective action
Tape Transport		
Completely inoperative, VU Meter lamps not illuminated	1. Power cord loose, not connected	1. Connect power cord
	2. Fuse blown	2. Replace fuse; 2nd time, see service center
Capstan does not rotate (VU Meter lamps illuminate)	Auto-shutoff arm not upright	Correct the arm position
Pinch roller will not engage	Dummy Plug not inserted in the Remote Control socket	Insert Dummy plug
Index Counter not operating	Counter reset not cleared	Depress reset button several times
Pinch roller dragging (cannot be spun freely by hand)	Needs lubrication	Remove pinch roller cover, apply 1 or 2 drops of oil, check by hand again
Tape Squeal noise	1. Tape rubbing reels	1. Install Reel Height Adjustment Sheet replace reel.
	2. Pinch roller dry or tape needs lubrication (silicone)	2. Use Tape Lubricating Cloth to apply silicone lubrication to the entire tape or replace the tape.
Playback Operation		
No sound	1. Disconnected audio cord	1. Check and secure connections on the deck and stereo amplifier system.
	2. OUTPUT Selector Switch mis-positioned	2. Place OUTPUT Selector Switch to TAPE
	3. OUTPUT Level too low	3. Increase OUTPUT Level Control
Poor sound quality	1. Dirty tape heads	1. Clean heads
	2. Decayed or defective tape	2. Replace tape
Unstable sound (wow, flutter, pitch changes)	1. Improper pinch roller pressure	1. Clean with Rubber Cleaning Fluid or replace pinch roller
	2. Dirty tape path	2. Clean entire tape path with head cleaner
	3. Tape rubbing against the reel	3. Install Reel Height Adjustment Sheet
Recording Operation		
Record Lights do not illuminate.	1. RECORD MODE Switch OFF	1. Place MODE Switch ON
	2. SIMUL-SYNC selected	2. Change to NORMAL
Does not record, cannot hear audio at SOURCE OUTPUT position	1. Input cable loose or disconnected	1. Check cord at deck and at stereo amplifier
	2. Input level too low	2. Increase Input Level Control
Does not record, cannot hear audio at TAPE-OUTPUT position	1. Dirty tape heads	1. Clean heads
	2. OUTPUT Level too low	2. Increase OUTPUT Level setting
Sound quality is low, dull, too much hiss, etc.	1. Dirty tape heads	1. Clean heads
	2. Decayed or defective tape	2. Replace tape
	3. Insufficient input level	3. Increase MIC or LINE Input Levels
	4. Heads or tape path magnetized	4. Demagnetize tape path
Distorted or garbled sound	1. Overmodulation from excessive input level	1. Reduce the Input Level settings
	2. Decayed or defective tape	2. Replace the tape

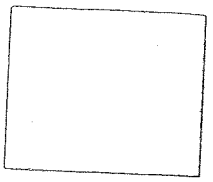
Specifications

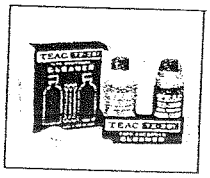
Heads	Three, 4 track-4 channel and 2 channel, stereo or mono (with SIMUL-SYNC switch), erase, record and playback
Reel Size	10-1/2" and 7"
Tape Speed	15 ips and 7-1/2 ips (±0.5%)
Motors	1 dual speed hysteresis synchronous capstan motor 2 eddy current induction reel motors
Wow and Flutter	0.04% at 15 ips 0.06% at 7-1/2 ips
Frequency Response	25–24,000 Hz (±3 dB, 30–22,000 Hz) at 15 ips 25–22,000 Hz (±3 dB, 30–20,000 Hz) at 7-1/2 ips
Signal to Noise Ratio	55 dB
Harmonic Distortion	1% at 1,000 Hz normal operating level
Stereo Channel Separation	55 dB at 1,000 Hz
Fast Winding Time	140 seconds for 1,800 feet
Inputs	Line: 0.1 V, 50,000 ohms or more Microphone: 0.25 mV/-72 dB (600–10,000 ohms)
Outputs	Line: 0.775V for load impedance of 10,000 ohms or more Headphones: 8–400 ohms
Power Requirements	117 V AC, 60Hz, 138 W
Dimensions	20-1/2"(H) x 17-3/8"(W) x 8-3/4"(D)
Weight	50 lbs. net
Standard Accessories	Empty reel Reel adaptor Input-output connection cord Oil Fuse Cleaning stick Silicone cloth Rubber feet AC power cord Reel height adjusting sheet Splicing tape

Specifications were determined using low noise tape.
Feature and specifications subject to change without notice.

Optional Accessories

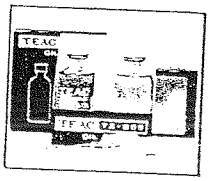


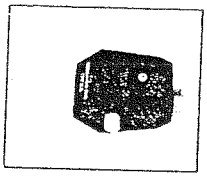




◄ TZ-261
Head and Rubber Cleaner Kit

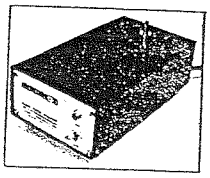
TZ-255 ►
Oil Kit

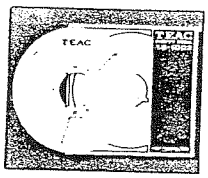




◄ E-1
Head Demagnetizer

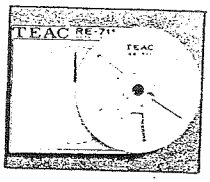
E-2 ►
Bulk Eraser

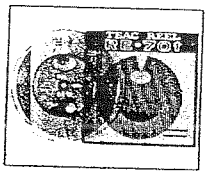




◄ RE-1002
10-1/2" Reel

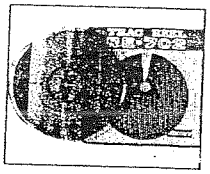
RE-711 ►
7 inch Metal Reel (small hub)

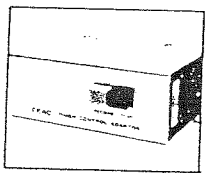




◄ RE-701
7 inch Plastic Reel (large hub)

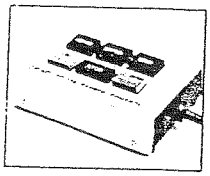
RE-702 ►
7 inch Plastic Reel (small hub)

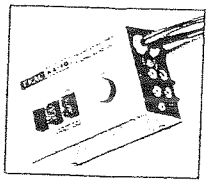




◄ RC-320
Timer Control Adaptor

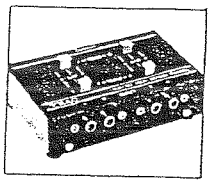
RC-120 ►
Remote Control Unit





◄ AX-10
Sound on Sound Echo Unit

AX-20 ►
Mix Down Panel



4 Channel Simul-Sync
Stereo Tape Deck **3340S**

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PRINTED IN JAPAN 0677SE04-D-2101K

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